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Edited by

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Professor and Chairman of the
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and

ALEXANDER SIMON, M.D.

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- An analysis of factors entering into the **design of experiments** in a most difficult field

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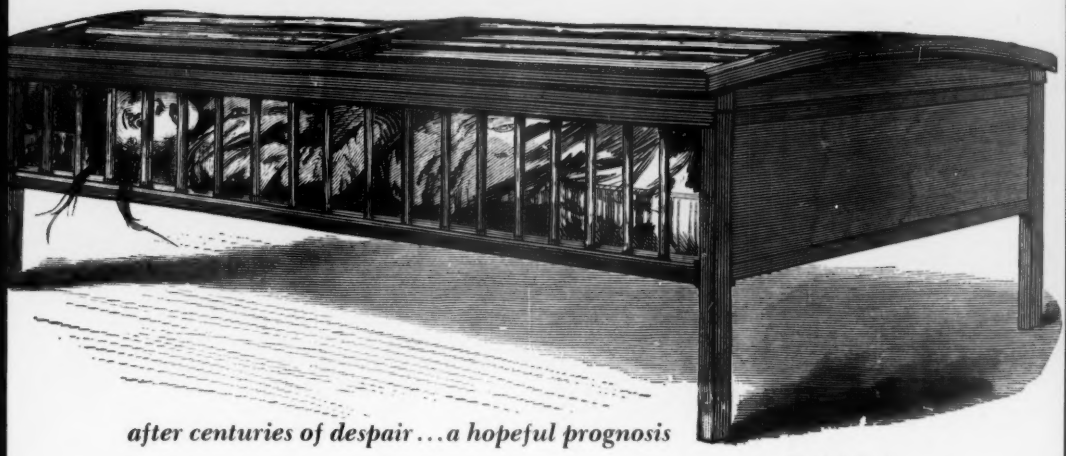

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CARL W. RAND, M.D.
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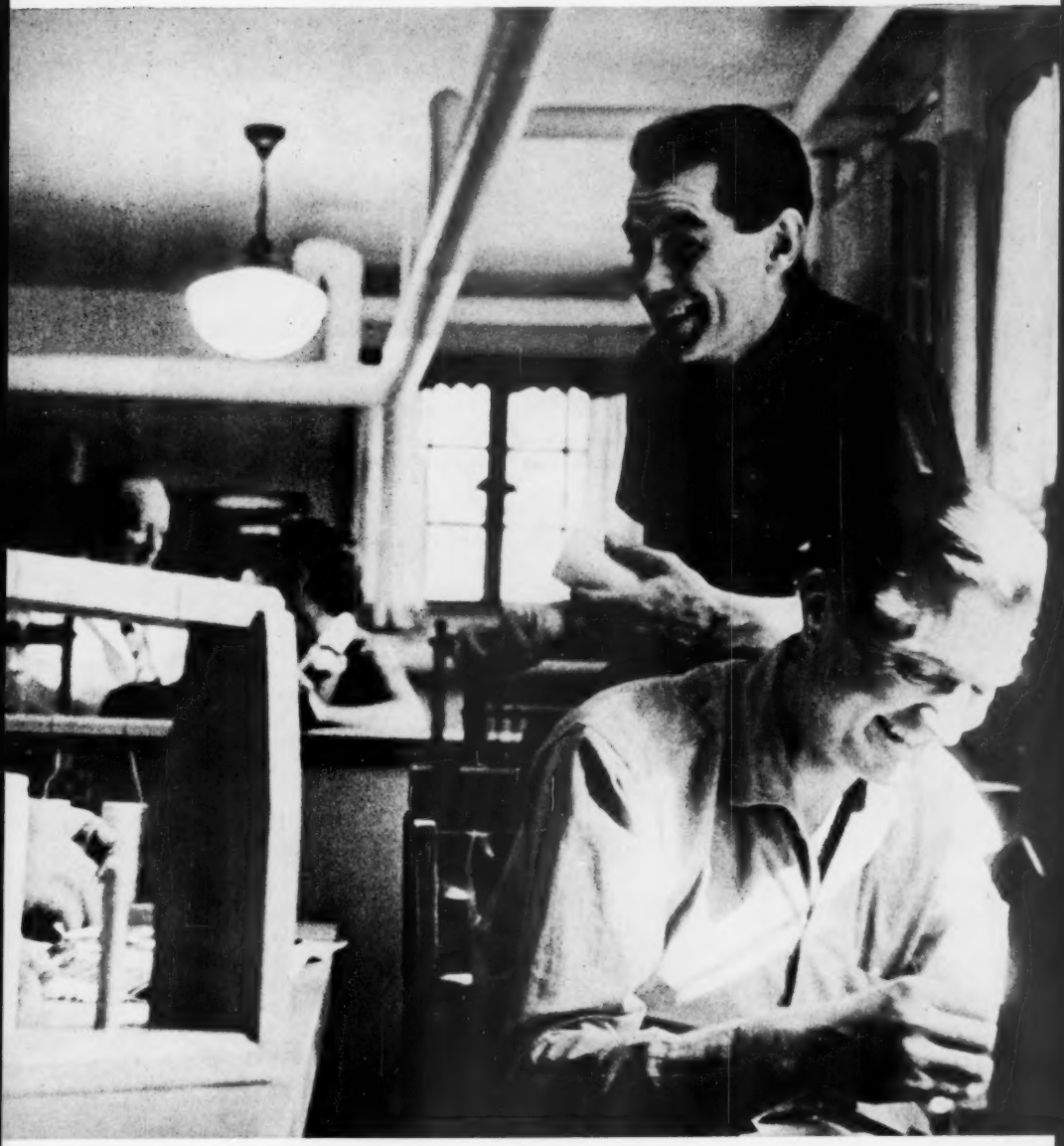

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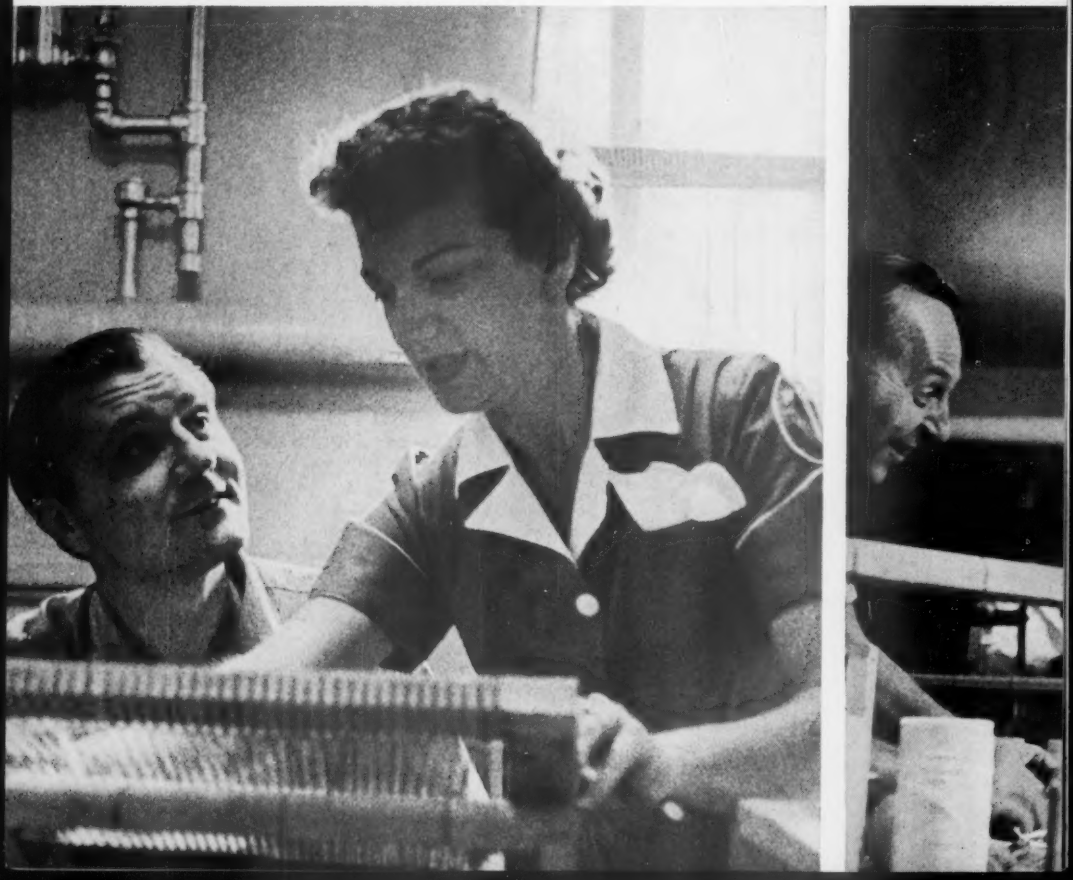

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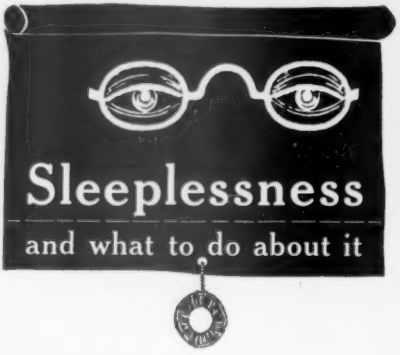

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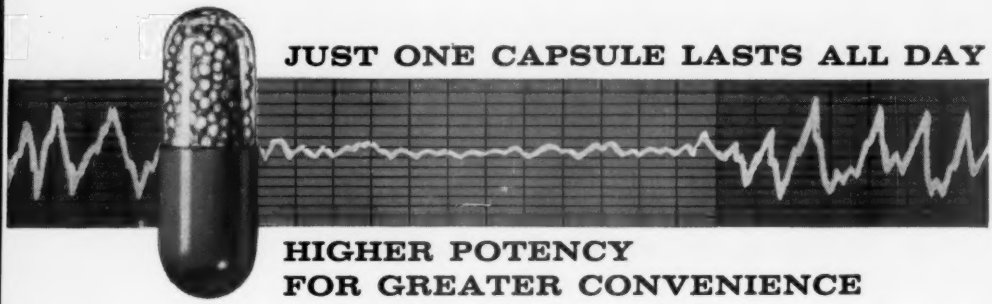

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Dual Role of the Psychiatric Consultant in the Community

VICTOR J. FREEMAN, M.D., Pittsburgh

Historians are recording the remarkable growth and development of psychiatry as a specialty. As a result of such rapid change, the psychiatrist has been faced with the need to assume greater community responsibility. From the role of psychiatric outpatient clinician, with relatively few patients in his charge, the psychiatrist is being urged to take on roles such as "mental health" director and "mental health" consultant, where potentially the entire local community is involved.

With this rapid expansion of the "mental health" movement into the area of health promotion, communities are discovering that their already overtaxed psychiatric facilities are unable to meet the new demands. Consequently, pressures are placed on the psychiatrist to yield the priority of clinical treatment to psychiatrically nontraditional professional functions.

A recent study of "Role Relations in the Mental Health Professions" suggests that there is an increasing need for psychiatrists to recognize new role expectations.[1] Blain and Robinson have taken an important step in this direction by proposing a zonal classification of all people in terms of their need for psychiatric help.[2] But it is necessary to go further and delineate the several potential roles in the area of community psychiatric consultation, in order to help clarify for the consultants, the consultees,* and the public the different areas and levels of responsibility.

I would particularly emphasize the need to examine the role of the "mental health" consultant from the point of view of responsibilities, part of which may be "nonmedical" in nature.† As successful pioneers in the fields of "mental disease" and psychoanalytic psychology, psychiatrists are sought after as a logical professional group to meet the growing demands for consultation. This "brief" is an attempt to present a set of concepts that hopefully might enable us to examine the problem of how better to meet such demands.

I should like to suggest that, in the role of consultant, the psychiatrist functions in two major areas, where he may differ both in degree of "medical" involvement and in professional interrelationship. Further, I would suggest that such differences add to the confusion that exists about psychiatrists in the minds of consultees, as well as the lay public. Psychiatrists must themselves be clear about such differences if they wish to help others to understand better, and therefore presumably to cooperate more effectively.

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* Consultees are those professionals who have requested the consultant's services.

† Used here in the particular sense, rather than in the traditional sense, of not being associated primarily with tissue disease.

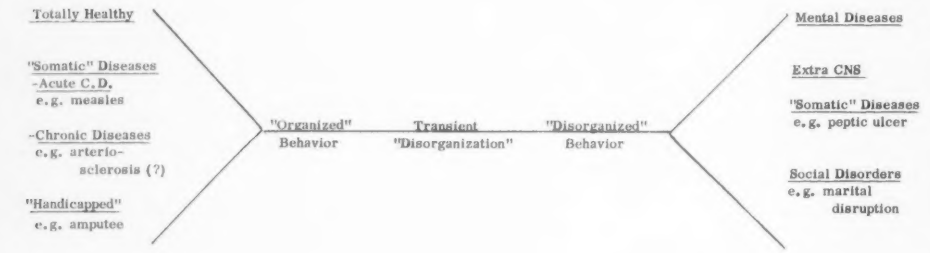
A committee of the American Psychiatric Association has concluded that "training in the community aspects of psychiatry and in the relation of psychiatry to other disciplines is an unrealized ambition rather than a consistent practice."[3] Recent psychiatric residency training emphasizes both the psychopathology of the "mental diseases"‡ and the psychodynamics of normal personality development. Consequently, residents now completing their training are provided the opportunity of filling a dual consultant role (*a*) as consultants in the diagnosis, treatment evaluation, and dynamics of "mental diseases," and (*b*) as consultants in the psychosocial aspects of interpersonal relations, in people healthy or diseased. Such a dual role can be confusing, particularly when it is not delineated. Instead of being delineated, a single role usually is indicated as a result of the use of the same label "Mental Health" for both the diagnostic evaluation of "mental disease" and the process of guidance and teaching in the area of interpersonal relations.

Such confusion is magnified by an assumption often implicit in "mental health" consultation. This assumption is to the effect that "mental health" and "mental diseases" are components of a single continuum and that, therefore, people who are "mentally unhealthy" are "mentally diseased." However, when "mental health" is used in its broad connotation (Jahoda[4]), the "mental health"-"mental diseases" continuum becomes illogical, because it no longer is strictly a "medical health-disease" continuum. Consequently, the implication that all people who are "mentally unhealthy" are "mentally diseased" does not hold true. The solution to this dilemma is not to substitute two new continua, as did Korner.[5] In fact, it would be better if we could avoid using the ambiguous label "mental health." Star, in reporting on results of the Public Opinion Research Center's survey of public attitudes about mental illness and psychiatry,[6] and Spiegel, in an American Psychiatric Association conference,[7] interestingly arrive at similar conclusions.

It may be helpful to view the problems encountered in the psychosocial area as part of a "behavioral" continuum (Graph). It is important to recognize that "medical" disease states may appear at either end of such a continuum, whereas the disorders caused, aggravated, or precipitated by psychosocial disturbance—of which some are "nonmedical" in nature—are located only at the "behavioral disorganization" end of the continuum. By "behavioral organization" or "disorganization," I have reference to the reality aspects of one's total interpersonal relations.

‡ "Mental diseases" is used here to mean those disease syndromes classified in the American Psychiatric Association's "Diagnostic and statistical Manual" (1952).

PSYCHOSOCIAL CONTINUUM



(Somatic = tissue disease)

Thus, in his dual-consultant capacities, the psychiatrist emphasizes his specialized "medical" skills in his role (*a*), as expert in the area of "disorganized behavior." He emphasizes his "psychodynamic" skills in his other role, (*b*), in the psychosocially "nonpathologic" area of "organized behavior." This latter role is not exclusive to psychiatry, nor to the medical profession, for that matter. This role is representative of a basic discipline, that of psychoanalytic psychology—in the nonprofessional, disciplinary sense. In this role the psychiatrist numbers among his peers, so-called "lay" analysts, social scientists, and those social workers, mental health nurses, and other professionals who have had specialized training in the psychosocial dynamics of behavior. Since tissue disease is not a primary factor in fostering "organized" behavior, this role in consultation ordinarily does not involve problems of medical responsibility. Consequently, this role can be performed by properly trained "nonmedical" professional personnel, assuming that matters pertaining to the diagnosis and medical treatment of patients suffering from "mental diseases" are adequately delineated. Training larger numbers of such "nonmedical" professional persons for role (*b*) could result in more efficient use of psychiatric manpower.

The matter of providing inservice training to a school staff in the area of personality growth and development may be appropriately handled and directed by a properly trained educational psychologist, for example, rather than a psychiatrist. If a psychiatrist does assume this role, he needs to be aware of the "nonmedical" nature of such a task, at the same time as he recognizes the clinical stereotype into which most people cast him.

When a psychiatrist serves as consultant to a group of "nonmedical" professional people such as social workers, he may be handicapped by the stereotype of the medical hierarchal relationship traditional to the "psychiatric team" (role *a*). A recent Public Health Service monograph by Parker [8] describes this same problem in a consultant program with nurses. Both parties involved may adhere to such stereotyping, to the possible detriment of the consultative process. For example, if an agency consultee presents a "problem" case to the consultant, as a result of such stereotyping the consultant may be tempted to take over the management of the case, and/or the consultee may desire that he do so. However, the latent problem critical to the consultation not infrequently involves the consultee's own problems with his client.[9] Such a situation requires the consultant's "nonmedical" skills (role *b*), since consultees, like the majority of people, usually are free of "mental disease." If the consultant yields to the consultee's requests to focus exclusively on the evaluative aspects of the "problem" case (role *a*), he may overlook a most important function of the consultation.

Time does not permit further elaboration. Suffice it to say that we need to view realistically and objectively our professional roles, interrelationships, and responsibilities in the community.

In summary, it is noted that psychiatrists are being urged to recognize new role expectations as a result of the rapidly developing "mental health" movement. Since newly graduating psychiatrists are trained in both the psychopathology of "mental disease" and the psychodynamics of normal personality development, they are provided the basic skills for filling a dual role as (*a*) consultants in the diagnosis, treatment evaluation, and dynamics of "mental diseases" and as (*b*) consultants in the psychosocial aspects of interpersonal relations. These roles are not necessarily interchangeable, and in some community areas (public health and school health, for example) may be productive of confusion.

It is proposed that this role confusion stems in part from the assumption often implicit in "mental health" consultation, namely, that all people who are "mentally

unhealthy" are "mentally diseased." It is further proposed that the correction of this misconception can be achieved by avoiding the ambiguous label "mental health" and recognizing that the psychosocial continuum is not strictly a "medical health-disease" continuum.

In the basic disciplines of the behavioral area, psychiatrists constitute one group among several that may have special competence for fostering "organized" behavior. In this second role, the psychiatrist's interprofessional relationship is different. The psychiatrist need not assume leadership in this area, provided that matters pertaining to the diagnosis and medical treatment of patients suffering from "mental diseases" are properly delineated.

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Sociopsychologic Aspects of Psychiatric Treatment in a Voluntary Mental Hospital

Duration of Hospitalization, Discharge Ratings, and Diagnosis

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The increasing studies of the sociopsychological aspects of psychiatric treatment in recent years have primarily been concerned with treatment patterns in the community,[12] private practice,[29] and outpatient clinics.[24,28] In the studies reported by Hollingshead, Redlich, and their co-workers [12,27] it was found that social class was a major determinant of the type of psychiatric treatment in the New Haven community. Patients from the upper classes were more frequently treated with psychotherapy, while somatic or custodial care was commoner among the lower classes. They summarized their results by noting: "It was found that treatment does not depend on psychological and medical determinants alone, but on the status position of the patient as well." [27] Weinstock,[29] reporting the results of a poll of the American Psychoanalytic Association, observed that the patients being treated by their members in private practice came disproportionately from the better-educated, high-income population.

Similar findings have been noted in studies of outpatient facilities. Myers and Schaffer [24] showed that the higher a person's social class the more likely he was to be accepted for psychotherapy, treated by more highly trained personnel, and treated intensively over a long period of time. In another study Rosenthal and Frank [28] found almost a linear relationship between educational level and frequency of referral for psychotherapy.

A more critical test of the importance of sociopsychologic factors in relation to psychiatric treatment would be in a setting where the same therapeutic techniques and services were equally available to all patients. This requirement is met at Hillside Hospital, which is a nonprofit institution for the treatment of voluntary patients with "early and curable symptoms," [11] who are admitted regardless of their ability to pay. One of the main criteria for accepting patients is their "ability to participate profitably in psychotherapy." [11] Individual psychoanalytically oriented psychotherapy is regarded as the primary method of treatment, with physiodynamic therapies available when needed. The average length of hospital stay is seven months, although some patients stay for more than a year.

In a previous study of the Hillside Hospital population,[14] it was shown that the factors of age, education, place of birth, and degree of stereotypy, as measured by the California F Scale,[1] were related to the selection of therapy. Those patients who were older, had less education, were foreign-born, and had high scores on the F Scale were more likely to receive convulsive therapy. In contrast, patients who were younger, better-educated, and native-born and obtained low scores on the F Scale received psychotherapy as their sole form of treatment.

The purpose of the present study was to determine the relation of sociopsychological

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factors to (1) the duration of hospitalization, (2) the clinical evaluations at time of discharge, and (3) the final diagnosis.

Method

Population.—The entire inpatient adult population of Hillside Hospital on March 7, 1957, was studied. This consisted of 171 patients, 57 male and 114 female, ranging in age from 16 to 68 years, with a mean of 35 years.

Procedure.—The patients were divided according to the duration of hospitalization, clinical response to treatment, and diagnosis. The duration was determined by the number of complete months in the hospital. The clinical response and the diagnosis were determined by the medical director at a staff evaluation conference, usually held just prior to the patient's discharge. Each patient was rated as recovered, much improved, improved, or unimproved on the basis of the reports of the therapist, supervising psychiatrist, and milieu staff. The discharge diagnoses were divided into four major groups: involutional psychosis, manic-depressive psychosis, schizophrenia, and psychoneurosis. These diagnostic categories included all but three patients in the population.

Each patient was tested with a 10-item modification of the California F Scale.[20] The F Scale is a questionnaire which has been related to such factors as authoritarianism, acquiescence, ethnocentrism, and rigidity.[1] The subject reads 10 statements and indicates to what extent he agrees or disagrees with each, i.e., "a little," "pretty much," or "very much." The score for each item ranges from 1 to 7, and the total score range is 10 to 70. High scores indicate greater agreement with the statements. These are extreme, uncritical, or stereotyped expressions. For example, one statement is this: "If people would talk less and work more, everybody would be better off."

Results

1. *Length of Hospitalization.*—In this population the duration of hospitalization ranged from 1 to 16 months, with a median of 7 months. For the purpose of analysis, the population was divided into three groups: 49 patients who were hospitalized for 1 to 5 months; 64, for 6 to 9 months, and 58 for 10 or more months.

The relation of sociopsychological factors to the length of hospitalization is shown in Table 1. The group of patients who were hospitalized for the shortest period had the highest mean F scores, were oldest, and had the least education and the largest percentage of foreign-born. Conversely, the group in the hospital for 10 months or more had the lowest F scores, were youngest, and had the most education and the smallest percentage of foreign births. Patients who were hospitalized for an intermediate period fell in between these two groups for each of the factors.

TABLE 1.—*Duration of Hospitalization: Total Population*

Months in Hospital	No.	F Score, Mean	Age, Mean Yr.	Education, Mean Yr.	Foreign-Born
1 to 5	49	43.9	45.5	10.0	41%
6 to 9	64	40.1	32.5	11.9	19%
10 or more	58	31.0	27.9	12.8	10%
					χ^2=15.0 ‡
		Mean Differences	Mean Differences	Mean Differences	
1 to 5 *vs.* 6 to 9		3.4	13.0 §	1.9 †	
1 to 5 *vs.* 10 or more		12.9 §	17.6 §	2.8 §	
6 to 9 *vs.* 10 or more		9.5 §	4.6 *	0.9	

* $P<0.05$.
† $P<0.02$.
‡ $P<0.01$.
§ $P<0.001$.

When the data for those patients who received convulsive therapy (Table 2) and those who received psychotherapy (Table 3) as their only form of treatment were analyzed separately, similar relationships between sociopsychological factors and length of hospitalization were found within each group.

In the psychotherapy group there was an increase in mean years of education with greater months of hospitalization, but the differences fail of significance. It may be noted, however, that many of the patients who were in the hospital for 10 months or more were under 19 years of age and were thus unable to achieve more than a limited number of years of schooling.

These same relationships of sociopsychological factors to length of hospitalization were found when the patients were classi-

TABLE 2.—*Duration of Hospitalization: Patients Receiving Convulsive Therapy*

Months in Hospital	No.	F Score, Mean	Age, Mean Yr.	Education, Mean Yr.	Foreign-Born
1 to 5	15	58.2	51.7	6.5	67%
6 to 9	17	45.6	42.2	12.3	24%
10 or more	25	34.9	32.1	13.2	16%
					$\chi^2=12.0$ ‡
		Mean Differences	Mean Differences	Mean Differences	
1 to 5 *vs.* 6 to 9		12.6 †	9.5 *	5.8 ‡	
1 to 5 *vs.* 10 or more		23.3 §	19.6 §	6.7 §	
6 to 9 *vs.* 10 or more		10.7 *	10.1 †	0.9	

* $P<0.05$.
† $P<0.02$.
‡ $P<0.01$.
§ $P<0.001$.

TABLE 3.—*Duration of Hospitalization: Patients Receiving Psychotherapy Only*

Months in Hospital	No.	F Score, Mean	Age, Mean Yr.	Education, Mean Yr.	Foreign-Born
1 to 5	33	40.2	43.2	11.4	30%
6 to 9	43	38.6	29.1	11.7	16%
10 or more	26	27.8	24.8	12.4	8%
					$\chi^2=5.4$
		Mean Differences	Mean Differences	Mean Differences	
1 to 5 *vs.* 6 to 9		1.6	14.1 *	0.3	
1 to 5 *vs.* 10 or more		12.4 *	18.4 *	1.0	
6 to 9 *vs.* 10 or more		10.8	4.3	0.7	

* $P=0.001$.

fied according to four major diagnostic groups (Table 4). For each diagnostic class, the lowest F scores, youngest mean ages, most years of education, and least percentages of foreign-born were characteristic of patients hospitalized for the longest periods. As a group, patients diagnosed as schizophrenic were the most homogeneous in relation to time in the hospital, showing major differences only in the F score, without a consistent trend for the factors of education or place of birth.

2. *Results of Treatment.*—The relation of sociopsychological factors to evaluation on discharge is shown in Table 5. There is a definite, almost linear, relationship between the ratings of improvement and these factors. Patients in the recovered group had the highest F scores, were oldest, least educated, and showed the highest incidence of foreign birth. In contrast, patients in the unimproved group had the lowest F scores, were younger, better educated, and were mostly native-born. Because of the wide variability within each group, however, only the factor of age reached a level of statistical significance. Education also significantly differentiated the groups when dichotomized according to those who had less than eight years of education and those who had eight years or more. Of the recovered patients, 29% had less than eight

TABLE 4.—*Duration of Hospitalization in Patients Classified According to Diagnosis*

Diagnosis	Months in Hospital	F Score, Mean	Age, Mean Yr.	Education, Mean Yr.	Foreign-Born
Involutional psychosis	1-5	58.2	58.8	7.1	57%
	6-9	50.9	54.5	9.6	43%
	10+	35.0	52.3	16.0	0
Manic-depressive psychosis	1-5	40.0	46.8	11.0	39%
	6-9	46.1	39.1	11.7	23%
	10+	33.1	35.5	12.3	0
Psychoneurosis	1-5	40.1	41.0	8.7	50%
	6-9	36.6	27.1	12.5	19%
	10+	36.1	27.1	12.5	13%
Schizophrenia	1-5	36.3	27.8	13.3	10%
	6-9	38.5	27.8	12.3	8%
	10+	27.6	24.1	12.9	12%

TABLE 5.—*Discharge Evaluation*

Evaluation	No.	F Score, Mean	Age, Mean Yr.	Education, Mean Yr.	Foreign-Born
Recovered	17	42.9	44.5	10.7	41%
Much improved	82	39.0	35.6	11.2	22%
Improved	63	36.1	31.2	11.2	16%
Unimproved	9	31.1	31.1	13.2	11%
					χ^2=6.1
		Mean Differences	Mean Differences	Mean Differences	
Recovered *vs.* Much Improved		3.9	8.9 *	0.5	
Recovered *vs.* Improved		6.8	13.3 ‡	0.5	
Recovered *vs.* Unimproved		11.8	13.4 *	2.5	
Much Improved *vs.* Improved		2.9	4.4 †	0.0	
Much Improved *vs.* Unimproved		7.9	4.5	2.0	
Improved *vs.* Unimproved		5.0	0.1	2.0	

* $P<0.05$.
† $P<0.02$.
‡ $P<0.01$.

years' education, while all of the unimproved patients had more than eight years' education; the much improved and improved patients were in between. By χ^2-analysis these results were significant at the 5% level of confidence.

When the data were analyzed for the patients treated with convulsive therapy, the trends noted for the population as a whole were intensified (Table 6). Analysis of the patients who received psychotherapy as their only form of treatment (Table 7), however, failed to show any statistically significant pattern. The recovered patients were oldest and had the highest percentage of foreign births, but education and F score did not show any clear trend.

3. *Diagnosis.*—The relation of sociopsychological factors to diagnosis is shown in Table 8. Those patients classified as showing involutional reactions had the highest F scores, the oldest mean age, the least years of education, and the highest incidence of foreign birth. In contrast, patients classified as schizophrenic had the lowest F scores, the youngest mean age, the most years of education, and the least number of foreign-born. Patients classed in manic-depressive psychosis and psychoneurosis categories were in between with regard to these social factors.

Comment

The present study has demonstrated that sociopsychological factors, in addition to

TABLE 6.—*Discharge Evaluation in Patients Receiving Convulsive Therapy*

Evaluation	No.	F Score, Mean	Age, Mean Yr.	Education, Mean Yr.	Foreign-Born
Recovered	8	53.1	51.6	9.4	50%
Much improved	26	41.8	43.8	10.6	35%
Improved and unimproved	23	39.7	32.3	12.3	17%
					χ^2=3.5
		Mean Differences	Mean Differences	Mean Differences	
Recovered *vs.* much improved		11.3	7.8	1.2	
Recovered *vs.* improved and unimproved		13.4 *	19.3 ‡	2.9 *	
Much improved *vs.* improved and unimproved		2.1	11.5 †	1.7	

* $P<0.05$.
† $P<0.02$.
‡ $P<0.001$.

TABLE 7.—*Discharge Evaluation in Patients Receiving Psychotherapy Only*

Evaluation	No.	F Score, Mean	Age, Mean Yr.	Education, Mean Yr.	Foreign-Born
Recovered	9	32.6	38.2	12.3	33%
Much improved	54	38.1	32.2	12.0	15%
Improved and unimproved	39	33.5	31.9	12.2	18%
					χ^2=1.8
		Mean Differences	Mean Differences	Mean Differences	
Recovered *vs.* much improved		5.5	6.0	0.3	
Recovered *vs.* improved and unimproved		0.9	6.3	0.1	
Much improved *vs.* improved and unimproved		4.6	0.3	0.2	

their previously determined importance in the selection of treatment, are also significantly related to the duration of treatment, the evaluation of the results of treatment, and the psychiatric diagnosis. If such results were obtained in a survey of private practitioners, as in the Weinstock report,[29] it could be concluded that the limitation of the number of practitioners and the expense of treatment served to select preferred persons from the upper social classes who could afford the treatment in terms of time and money. The present results, however, were obtained in an institution where the various kinds of treatment were equally available to all patients and where the ability to pay was not a factor in the management of the patient. We postulate, therefore, that the observed relationships are not due merely to mechanically selective aspects, such as income or the prestige status of the patient. Social factors are important because they are also related to psychological processes, such as the habitual patterns of communication, modes of expression, and symbolic values. We shall attempt to evaluate these processes and their effect on the psychiatric relationships studied in terms of the influence of sociopsychological factors on the attitude and behavior of the therapist, the patient, and the therapist-patient interaction.

Current data both from this laboratory [14] and from others [12,24,27,28] have demonstrated that psychotherapy is most likely to be sustained with those persons who most

TABLE 8.—*Diagnosis*

Diagnosis	No.	F Score, Mean	Age, Mean Yr.	Education, Mean Yr.	Foreign-Born
Involutional psychosis	24	52.3	56.7	8.9	46%
Manic-Depressive psychosis	39	40.8	41.9	11.5	26%
Psychoneurosis	37	36.9	29.4	11.9	22%
Schizophrenia	68	32.8	26.1	12.7	10%
					χ^2=14.2 ‡
		Mean Differences	Mean Differences	Mean Differences	
Involutional *vs.* Manic-depressive psychosis		11.5 ‡	14.8 §	2.0 *	
Involutional psychosis *vs.* psychoneurosis		15.4 ‡	27.3 §	3.0 ‡	
Involutional *vs.* schizophrenia		19.5 §	30.6 §	4.5 §	
Manic-depressive psychosis *vs.* psychoneurosis		3.9	12.5 §	0.4	
Manic-depressive psychosis *vs.* schizophrenia		8.0 †	15.8 §	1.6	
Psychoneurosis *vs.* schizophrenia		4.1	3.1	0.8	

* $P<0.05$.
† $P<0.02$.
‡ $P<0.01$.
§ $P<0.001$.

closely resemble the therapists with regard to cultural background, systems of value, and communication patterns. With stress at Hillside Hospital on psychoanalytically oriented psychotherapy, it is consistent that those patients who are most like the therapists with regard to these factors would be kept in the hospital for the longest period. This was true for patients receiving convulsive therapy or psychotherapy and for all diagnostic groups.

The length of time a patient remains in a psychiatric facility is related to the particular function and philosophy of the institution. In studies of outpatient clinics which have a psychoanalytic orientation [24,28] it has been observed that persons from the higher social classes, determined by education or income, are treated for a longer period. In contrast, in state mental hospitals, patients with the least education are kept longer and form a higher proportion of the chronically hospitalized group.[6,17,23] The state-hospital therapist, viewing the institution primarily as a custodial facility,[12] is evidently oriented toward the more rapid discharge of those patients who come from a background most like his own.

The observation of the relation between sociopsychological factors and improvement rating, particularly in those patients receiving convulsive therapy, may also be related to differences in communication patterns between therapist and patient that result in referral for convulsive therapy. The therapist may set different criteria for improvement for the older, less educated patients than he does for the younger, more sophisticated ones. In the patient with little education and with modes of expression different from his own, he may regard, for example, the manifestation of denial or minimization of symptoms as improvement.[15] But in patients culturally like himself, the expression of denial is regarded as a defensive operation, and the patient is considered unimproved.

Ratings of improvement are also related to the base line of premorbid functioning. Thus, the rating of recovered is defined at Hillside Hospital as "the reasonable expectation that the patient will be able to return to his community and function as well, or better, than he did before he became ill." [11] The therapist's perception of the patient's premorbid functioning may be influenced by the distance between his value system and that of the patient's. The greater the social distance between therapist and patient the less rigorous the requirements for behavioral change may be. For example, for older, lower-class patients the ability to resume work may be the major criterion of improvement. For better-educated patients work adjustment may be one of many criteria, including such intangible aspects of behavior as insight, work gratification, and ease of sociability. The patient's expectancy not only of the type of psychiatric treatment but of improvement is also dependent upon social background.[12]

While the same trends were shown in the psychotherapy patients, the results did not reach the level of statistical significance. This may have been due to the greater homogeneity of these patients for the factors studied, in contrast to the convulsive group. The outpatient study by Rosenthal and Frank [28] also failed to find a relation between social factors and improvement rating in the patients who received psychotherapy. This observation, also, was obtained in a population that was more homogeneous after the initial admission selection process and after the spontaneous screening effected by the patient's willingness to attend treatment after he had been accepted.

The marked relationship between sociopsychological factors and diagnosis is not surprising. Certainly, the relationship of age and diagnosis is an established concept in clinical psychiatry. In the involutional disorders and in dementia precox the names themselves have a chronological connotation. Landis and Page,[19] in 1938, stated that age was the "most important *single* deter-

mining factor that we can know about mental disease." They asserted that, given the age distribution of a group of patients, they could accurately predict the number in each diagnostic group, as well as the probable outcome with respect to recovery and the length of hospital residence. More recently, Frumkin,[8] reporting the median ages of first admissions to a mental hospital in Ohio, observed data similar to our own with regard to the ages for the various diagnostic groups.

In the present study, however, we have also shown that education, place of birth, and F score significantly differentiate the major diagnostic groups in the hospital. In view of these findings, we have postulated that a psychiatric diagnosis is not just a one-to-one reflection of a specific type of behavior pattern but is also a value judgment in terms of social interaction. Thus, both in our own studies and in the work of others [12] it has been noted that patients with similar symptoms will receive different diagnoses, depending on their social background.

An additional hypothesis relating sociopsychologic factors to diagnosis may be based on the concept that persons from different social backgrounds acquire different habitual modes of adaptation, communication, and expression. Accordingly, under conditions of stress, altered brain function, or states associated with the onset of mental illness, a person will show those behavior patterns or symptoms which are similar to his habitual patterns. Thus, persons from a lower-class social background are more apt to communicate in nonverbal, physical terms, while upper-class people are more likely to do so in ideational and verbal modes. Thus, anger may be expressed by lower-class people by physical violence, while persons from the upper classes are more likely to resort to exhortation or argument.

Opler and Singer,[25] studying schizophrenic Irish and Italian patients in a Veteran's facility, found significant differences in the types of symptoms related to cultural differences in the family backgrounds. Patients from Irish families in which the active expression of emotions were frowned upon and who had dominant, overprotective mothers, were passive, compliant, and withdrawn, and were fearful of anything which might separate them from the protection of the hospital. Patients with Italian family backgrounds that encouraged free expression of emotion and who were ruled by a dominant father, showed assaultive and destructive behavior, were difficult to manage, and were rebellious against authority.

In a comparable study, Miller and Swanson [22] noted that hospitalized schizophrenic patients exhibited significant social-class difference in symptomatology. Lower-class patients showed a predominance of "motoric themes," while middle-class patients exhibited "conceptual or ruminative themes."

Hollingshead and Redlich [12] found a marked difference in the type of neuroses shown by persons from different social classes. While hysterical reactions were found predominantly at the lowest social levels, obsessive-compulsive patterns were characteristic of the upper classes. They felt that the lower-class patient expresses his neurosis by acting out, whereas the upper-class neurotic shows his symptoms in ideational dissatisfaction with himself.

According to our hypothesis, then, we should expect that persons from lower social levels would show symptoms that are nonverbal, and are expressed predominantly in sensory or motor patterns. Among such types of symptoms would be psychomotor retardation, anorexia, catatonic stupor, muteness, hysterical blindness, and paralysis. In this connection it is noteworthy that both hysteria and manic-depressive psychosis have been reported on the wane in the general population.[2,4,8,10] This decrease, in our view, is related to the general increase in educational level of the country as a whole. One cannot, of course, ascribe

the decrease in hysteria to a greater freedom in sexual matters; hysteria is commonest in more poorly educated people, who are least inhibited sexually.[16] Rees [26] has reported that those British soldiers who had hysterical symptoms in World War II were mainly the mental defectives. He noted that hysterical symptoms were related to intelligence and education. Freyhan [7] has indicated not only that the present clinical patterns of hysteria are different from those shown at the turn of the century but that such schizophrenic manifestations as "cataleptic stupors, stereotypical motor peculiarities, grandiose excitement, and violent behavior" are difficult to find today. These observations suggest that a sociopsychological framework can lead to the prediction of future patterns of mental illness.

In our investigations of persons with depressive psychoses, we have frequently noted a pattern of premorbid behavior characterized by lack of imagination, creativity, and introspective capacity, and by conventionality and general rigidity.[13] Similar patterns have been reported by other authors.[3,5,9,21] We believe that a deprived cultural background, such as that involving little or no education, with the early years spent in an illiterate environment with meager cultural resources, is conducive to the development of such a personality pattern. When mentally disordered, such persons react with the repertoire of behavior patterns that we term "depression."

It is important to keep in mind that while the relationship between social factors and the psychiatric aspects described is probably applicable as a general principle, the specific findings may vary in different settings or institutions. For example, Hollingshead and Redlich [12] found that schizophrenia was a diagnosis proportionately commoner among the lower than among the upper classes, while at Hillside Hospital the schizophrenic patients had the highest education. This discrepancy may be related to differences in composition of the two populations, the Hillside patients being drawn largely from the middle-class groups, with relatively few from the upper or lower social classes. In Hillside Hospital the diagnosis of schizophrenia may indicate an "interesting" patient, while in a state hospital population the same diagnosis may represent a patient who is "hopeless."

From the perspectives developed in this report, observations which are commonly explained in motivational and "dynamic" terms may also be understood in other ways. Thus, some situations where a patient is said to be "hostile" or "resisting psychotherapy" may reflect a problem in communication between patient and therapist, related to their differences in social background.

It also is apparent that the social background of the majority of the mentally ill paients is such as to make the current practice of universally employing a verbal, insightful-oriented therapeutic approach a difficult, if not inappropriate, procedure. The answer to the problem of how to treat the vast number of mentally ill may be not to train more and more psychotherapists, but, rather, to develop therapeutic techniques more suitable to the patient's own systems of value and communication.

Summary and Conclusions

Significant relationships were found between sociopsychological factors and duration of hospitalization, discharge evaluation, and diagnosis in a voluntary mental hospital.

Patients hospitalized for the shortest period were oldest, had the least education, were most likely to have been foreign-born, and had the highest scores on the California F Scale. Younger, native-born, more educated, and lower F-score patients were hospitalized the longest.

The same relationship of these factors to length of hospitalization was found when analyses were made according to type of treatment (convulsive therapy or psychotherapy) and diagnosis.

Discharge evaluations of improvement were significantly related to age, the older

patients having the more favorable ratings. Analysis of the data by type of treatment demonstrated that patients rated as recovered or much improved after convulsive therapy had the highest F scores, the least education, and were most likely to be foreign-born.

Diagnoses of schizophrenia or psychoneurosis were associated with lower F scores, younger ages, more education, and native birth. The older, less educated, foreign-born, high-F-score patients were most frequently classified under involutional or manic-depressive psychosis.

It is postulated that these relationships reflect the influence of social background on psychological processes, such as the habitual patterns of communication, modes of expression, and symbolic values. These not only contribute to the pattern of mental illness but affect all aspects of the patient-therapist interaction.

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Revisiting

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A considerable part of man's waking life is devoted to recollection of things past. Individuals, as is well known from psychotherapeutic encounters, differ in the vividness with which they envision past experiences, in the range of their reminiscences, and in the relative frequency of the recurrence of various images or themes. In the "eidetic" there is the phenomenon of total recall of specific stimuli; in the agitated depression is often seen persistent recall of an event, a derived theme, or a referring symbol. In obsessions there occur the inability to forget, the repeated representation in consciousness of a phrase, an idea, an impulse. Accompanying these memories are varying degrees of affect, measurable along various continua of intensity, pleasure, or displeasure, or of appropriateness. Occasionally one's feelings about past events are so powerful that there develops an urge to recreate the event, to relive the experience, or, these being impossible, at least to revisit the scenes of earlier life.

During the past year I have seen two patients who have undertaken "projects" of systematically revisiting scenes of their past life. I would like first to describe these cases and then attempt a formulation of the meaning of this symptom.

Report of Cases

CASE 1.—The first of these persons is a 39-year-old engineering designer who was admitted to my semidisturbed open-ward service when, after five years of psychotherapy, he expressed the delusion that a dentist had been filling his teeth with arsenic. His therapist at this point feared that the patient might attempt suicide or homicide. All patients on the ward to which he was admitted participated in group psychotherapy, and this man, a very intelligent, highly verbal, obsessive-ruminative type, soon became a dominant figure. However, he came to resent strongly the authority of a Negro attendant and, in homosexual panic, began to disorganize into frank paranoid schizophrenia. With a great show of strength, involving six attendants and other male staff members, we ceremoniously transferred him to a locked ward. He seemed much impressed by this, and inside of three days it was felt that he could return to his former status. Improvement was rapid after this; the patient was permitted to look for a job, at his own request, and, having found one nearby, he was discharged from the hospital. Also, at his request, I agreed to see him in individual psychotherapy once a week; this was continued for one year, at the end of which time he asked to terminate treatment. When I also agreed to this, he seemed extremely pleased at my faith in him. I strongly expect that he will want to see me again in another six months, but in the meantime he is a useful member of society.

Early in the year he would occasionally mention to me trips that he had made to see members of his family at home in a nearby small city, and he would relate parts of a voluminous autobiography on which he had been writing while hospitalized and for several years previous to this. As I exhibited no interest in his autobiography, the patient began to bring in photographs of places he had visited (he is an excellent photographer). Slowly I became aware that he was systematically revisiting all the places where he had lived during his childhood. With care and precision he tracked down leads as to the whereabouts of various informants, showing the skill and initiative of a trained researcher or a professional detective. On the other hand, the information he gleaned and the events and interpretations he recounted to me were marvels of schizophrenic elaboration, which associated persons and places on the basis of similar morphs and morphemes, phons and phonemes. At one point in his life, he told me, shaking his head in retrospective horror, he was on the verge of killing one man merely because there were two letters in his first name and three in his second that reminded him of someone else he hated!

Clearly the patient had in his past episodes of shame, embarrassment, and humiliation. These he wished to obliterate. Particularly there was the unclear representation of his father, who had been imprisoned and who had died under circumstances that were mysterious to the patient. On his "revisits" he would try, above all, to collect informa-

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tion about his father's crime and the circumstances of his death.

Near the end of therapy we established as the mechanism of his "revisiting" the wish to establish in fact a denial of his father's guilt, and hence a legitimization of his own existence.

CASE 2.—The second case is that of a 58-year-old rabbi, treated for hypertensive cardiovascular disease by an internist. As there was much anxiety involved in the symptomatology, psychiatric consultation was requested. It became quickly apparent that the anxiety had a large situational component in its etiology, as considerable conflict had developed between the rabbi and certain influential members of his congregation. Apparently the rabbi was attempting to maintain the traditional prestige and dignity of his position, while members of his board of trustees chose to conceptualize and deal with him as a paid employee. This resulted in a severe blow to the rabbi's self-concept. To strengthen his position, he sought the help of friends who might obtain for him offers of other pulpits—not for the purpose of actually leaving his unruly congregants but for enabling him to manage them with a firmer hand.

Also, at this time the rabbi began to visit systematically the scenes of his childhood and youth, seeking to rediscover old friends and sometimes relatives. In recounting this, he would recall chiefly his earlier triumphs and the many prognostications of his future success. He reinforced in himself the idea of his own personal worth, gaining comfort and courage from, as he phrased it, "sipping waters from the wells of the past."

Comment

The first conclusion which might be drawn from considering these two cases is that here are two very different men, both of whom are engaging in a similar type of behavior, but for apparently different reasons. The engineering designer is seeking evidence that will "clear" his father's name, and hence his own. The lesion exists in the past; it is known, it must be treated. But for the rabbi, the lesion is in the present; the past can give him warmth and comfort. For the engineering designer, the past was harsh; he feels some strength in the present, hopefully sufficient to remake the past. For the rabbi, the present is harsh; he feels strength in the past, hopefully sufficient to remake the present.

Now, what is the outcome of the revisiting? The engineering designer becomes convinced that his father did not directly commit the crime for which he was sentenced, but was sufficiently involved in nefarious acts as to make him appear culpable to the patient, who is accordingly satisfied. The legal authorities were wrong, but so was his father. Both the law and his father were guilty.

The rabbi's experience, when lightly probed, turns out to be remarkably similar. His past was not as good as he thought it was. His early successes were, often as not, artifacts of circumstance, not simply the result of superior ability. He had opportunities which he let pass. He was not as good as he thought he was.

With both patients these ideas were not allowed to reach full awareness at this time. The partial insights which each achieved were beneficial in helping him adjust to his present circumstance. Yet this is somewhat surprising, for in a sense each was disappointed: The engineering designer was confronted with his father's inadequacies; the rabbi, with his own. Neither, it goes without saying, did anything to alter his past; what did these "revisits" do for the present?

The engineering designer was now, in a more realistic way, able to go about his business. Convinced that his father was not guilty of the crime for which he had been convicted, he was now less afraid of attack by his superiors; no longer required to idealize his father's righteousness, he no longer found it necessary to prostrate himself before his father-surrogates.

The rabbi, recognizing his limitations and the role of circumstance in previous good fortune, was able to modify his expectations of himself, and see himself as less of a Jehovah-like figure. Thus, he was able to accept more readily the semantic and personal reality of his congregation. Able to accept their reality, he felt better equipped to deal with them.

It is remarkable to what extent these partial outcomes of "revisiting" resemble the ultimate outcome of successful psychotherapy. As a result of reconceptualization of

the past, the patients are able to deal more realistically with situations in the present. It becomes evident that "revisiting" is actually a microcosm of the psychotherapeutic encounter. It is, of course, an acting out. Psychic conflicts are expressed directly in overt behavior; the thoughts have spilled over into acts. Instead of mental or vicarious reexperiencing, the wish to see, to reconfirm, is acted upon. It is equally true that entering into psychotherapy is an acting out. The needs or conflicts can no longer be dealt with on an intrapsychic level, and the patient actually goes to someone for help. The fact that this kind of behavior is currently and historically a familiar one, and that there is usually a socially approved procedure for seeking this kind of help does not alter the inner meaning of entering into psychotherapy; what happens is that the spillage over of the need into overt action is facilitated by providing a ready channel.

"Revisiting" is not uncommon. The act of making "pilgrimages," or "going home for the holidays," or stopping by to see "the old home town" is a regressive phenomenon permitting relaxation of personal vigilance, temporary forsaking of personal goals and strivings, in order to make an obeisance to the past, to restock with familiar supplies, to regain known gratifications.

Yet so often we hear, as in the title of Thomas Wolfe's novel, that "you can't go home again." This is true, literally, in the sense that you can go back only to the place where your home was; you cannot simultaneously return in time. Of course, time may not have moved on for all of one's memory traces, and to that extent the phrase is wrong, for there is in this area no distinction between past and present. However, it may be dangerous so to dabble in time travel; well-established equilibria of memory traces and the present-day components of one's perceptual field may be seriously disrupted by such an encounter. Revisiting is not for everyone. But, of course, neither is psychotherapy—at least of a deep or analytic kind—for everyone. The designing engineer was able to "revisit" because he had the support of an active therapist who helped him to restructure, to reorganize his phenomenological field when it became disorganized. The rabbi was able to "revisit" because he was not sufficiently distressed in his present-day life to become disorganized, and his ability to integrate old and new and to achieve a restructuring (organizational ability) was functionally satisfactory. Similarly, in intensive psychotherapy a disorganized patient will become more distressed when permitted freely to wander among his memory traces without the organizational help of an active therapist. The well-organized patient, on the other hand, can go on to new and creative syntheses through the opportunity to browse among forgotten or no longer immediately available images.

In everyday life one occasionally "revisits," either through casual design (which is evidently far from "casual") or because the past is thrust upon him—through identity or similarity of circumstance or through unexpectedly meeting or receiving a communication from a person out of his past. Such episodes can be quite jolting, or even shattering, as one is, in reality, confronted with skeletons from one's closet. In psychotherapy the significance of these experiences may be handled with understanding. In nontherapeutic, everyday existence, the ability to deal with such confrontations may be an excellent measure of the current state of one's psychic organization.

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A Review of Some Recent Treatment Methods for Elderly Psychiatric Patients

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According to the U.S. Bureau of the Census estimates, by 1975 there will be 21,000,000 persons in the United States who are 65 years of age and older. Since 1900, while the total population of the United States has doubled and the number of persons from 45 to 64 years old has tripled, the number of persons aged 65 years and more has quadrupled. Because of this indicated growth of population at older age levels, interest in the methods to secure, maintain, and restore their health has quickened. This report, highlighting some representative efforts relative to the psychiatric problems of elderly persons, may serve as a review of current efforts and a guidepost for future efforts.

In the United States, the number of persons living beyond the age of 65 in 1950 was nearly double that in 1900. For the practice of medicine this statistic had numerous implications, one of which was the increasing number of emotionally disturbed elderly patients seen by the physician in his daily practice. Now many journals, texts, films, and symposia attest to the increasing attention these emotional problems of older-age patients receive, since progress in clinical psychiatry and geriatrics has mitigated the therapeutic nihilism which heretofore vitiated the attack upon the emotional ills of the elderly.

The Psychology of Aging

Successful management of the psychiatric ailments of the elderly must be predicated upon knowledge of the "normal" mental health of this period of life.

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An attentive physician who listens to any elderly person may hear a tale of an individual's struggle for survival in the face of a whole long series of partial amputations of capacities. How this decline in adaptive powers limits the range of operation of the homeostatic processes has been variously described.

Meerloo [29] has noted:

> The onset of involution and decline differs widely in many persons. We may suppose that much of it depends not only on the somatic body instrument and the decline of homeostatic capacities, but also on underlying compulsions and lifelong frustrations. In some people the process of what might be called psychosclerosis may start early in life. Others are able to develop new capacities in very old age.

In psychobiologic terms, Gitelson [12] sketched this picture:

> With advancing age not only is the person confronted with the experience of failing personal powers but the involution of the vegetative organs deprives him of the balancing compensations which the infant finds in his vegetative functions. Finally, while the helpless child may be coddled and protected by his mother pending his maturation and self-sufficiency, the helpless grandfather may meet with short shrift. The old man's memory may be full of past glories and his heart empty of hope. It is this overlapping of the waning powers of maturity and the increasing helplessness of the second childhood that is the basis for the psychological picture with which old age presents us.

Heredity and constitution in part mold the senescent's psychologic picture, as they do at any age. Kallman [23] states:

> On the basis of our twin observations it is no longer questionable that heredity and constitution play a basic role in determining the variable ability to maintain a state of physical and mental health until and through the period of senescence.

Elsewhere,[34,35] I have detailed some psychologic changes in the elderly person whose boundaries and equipment are being

constantly and unceasingly restricted and depleted by the aging process. The dulling of recent memory and the increase of the conservative mental outlook are apparent, as are the exaggeration of lifelong character traits, prejudices, biases, and opinions. Attenuated interest in the new, and reminiscent indulgence in the good old days have supplanted the young person's inclination to form new associations and ways. Accuracy and speed of thought are diminished. Self-assertiveness, and even domineering attitudes, attempt to compensate for feelings of inadequacy and insecurity. Often, death, in taking its toll of family and friends, undermines the delusion of invulnerability to which we all cling and leaves a sense of growing isolation and loneliness in its stead. Mild depression may ensue. Slights are often, because of increased sensitivity, perceived in paranoid fashion.

Postmortem examination evidence deprives us of those tempting explanations which would attribute these phenomena to physiologic and pathologic changes in the central nervous system. It is not always possible to establish one-to-one relationships between mental symptoms and structural damage.[35-37] Although Alpers [2] has demonstrated that there is but a 30% to 40% correlation between the presence of retinal arteriosclerosis and cerebral arteriosclerosis, the presence of the former continues to result in the diagnosis of the latter with concomitant prognosis. Indeed, in a fairly well-balanced person very considerable cerebral damage is withstood, while in those less well emotionally balanced minimal cerebral pathology may produce a frank psychosis. The cerebral pathology seems to be a "final straw" that utterly disrupts the homeostatic mechanism of the person already emotionally overburdened.

Concomitant to aging are some special predisposing factors which tax the homeostatic capacities. For the mother, as a result of the loss of children who grow up and leave home, there may be lessened self-esteem resulting from lessened opportunity for service to her children, with an accompanying loss of purpose in life. The retirement of the male all too frequently is perceived by him as an indication that "he's through," especially when his retirement is proclaimed in a ritualistic ceremony complete with banquet, speaker, and gifts conveying a sense of graduation to a living death. A lengthy marriage is conducive to a symbiotic relationship in which the death of one may soon be followed by that of the survivor without much apparent correlation to the second member's state of health. Other potential disruptive forces are the excessive survival of parents which may burden the aging patient. On the other hand, where there has been an overly prolonged and exaggerated child-parent relationship, the inevitable loss of parents may produce a stressful situation.

As in psychiatry for other age groups, a variety of approaches has been employed for the elderly: intra- and extramural; psychotherapeutic, pharmacologic, and physical therapies on an individual and group basis, separately and in combination. In this report those therapies emphasizing the pharmacologic and physical aspects of treatment will not be detailed; rather, those emphasizing the intra- and extramural applications of individual and group psychotherapeutic practices will be reported.

The Mental Hospital and Group Therapy

Therapeutic efforts with groups of elderly patients in mental hospitals have ranged from tea parties to actual gerontologic group therapy. It is readily apparent that many psychiatrists are achieving encouraging results working at these varying levels with the geriatric patients under their care. Some examples of these efforts, arranged roughly in order of increasing complexity, follow.

One ward psychiatrist [24] approached his ward "as a total social situation with a constantly dynamic interplay involving all the personnel and patients." Observation and study revealed that there were four groupings of patients on the ward, which, "although loosely structured, had definite

dynamic interaction." One group, the senile group, occupied the same seats each day. Its members did not communicate verbally, and each of the individuals seemed to have an isolated life, wherein anything but routine behavior was regarded as an unwelcome change. They considered music and dancing frivolous. Even though the senile patients were capable of doing only the simplest tasks, the initial psychiatric objective was to encourage these patients to do as much as possible for themselves. The aide was attentive to the individual patient's personal hygiene, and most of her time was devoted to this. Encouragement to empty ashtrays, water flowers, sweep floors, and help care for one another was given. Nothing more specific was attempted at first. Later, a simple form of group meeting was organized, patterned somewhat after a tea party, with the aide acting as mother. Milk and cookies were served. The degree of brightness manifested was surprising. At bingo parties, the next phase, their ability to play was remarkable. No longer was this group in any way an eyesore. The most obvious change was the improvement in personal hygiene and general appearance. The earlier tendency toward general deterioration decreased. Lichtenberg recognized [24]:

> It is quite clear that the content of the psychotic patient was not in any way directly affected by the program. However, there was an improvement in the general level despite psychotic content or affect.

This method of initiating group therapy at Central Islip State Hospital, Central Islip, N.Y., has been described by Corcoran [10]:

> We have found the following arrangement to be satisfactory. We start with a musical program—folk songs printed in large letters visible to the entire class, are placed on a rack, each sheet carrying about 14 lines, and easily turned. If the leader wishes to repeat a page, she so directs with a pointer. Another member of the group plays the music for each song. Most of the songs become familiar to the class and are known to all the leaders. If the patients are unable to sing, they hum. This feature alternates with individual singing. Individual patients not able to sing in English will sing their native folk songs in their own tongue. Folk dancing, jigs and recitations alternate in this part of the program. Refreshments are then served, consisting of coffee, doughnuts, cookies, soft drinks, etc. This entire procedure creates a pleasing and stimulating effect, and the therapist-aide circulating among the group is watchful of the reactions of each patient. The group becomes more cheerful, accessible, and enters into conversation more easily, at which time the psychotherapist takes over the class. The Gray Ladies and Canteen Workers of the American Red Cross play an important part in assisting at these sessions.

At Verdun Protestant Hospital,[40] in Montreal, 17 senile psychotic patients between 70 and 80 years of age, who had been hospitalized from 1 to 13 years, met twice every week in group psychotherapy. The group was convened by the ward nurse and was told that they were going to meet with the ward doctor. Upon arrival, the physician explained the purpose of the meeting, namely, to give the group members a chance to discuss their problems with him. The greatest response was produced by indicating to the patients that there would be a concrete gain from talking. After about 20 minutes, the keenness and interest of the therapist and the group produced by the stimulus of meeting together began to lag; so tea was served at this time. Interest revived and carried through the remaining time. In contrast to other groups, these participants were mainly concerned with going home, and only by persistent exercise of an interviewing technique could the discussion be guided toward these topics of prominent interest to the group: physical complaints, the good old days, socioeconomic concerns, loneliness, wishful fantasies, and rejection. Specific therapeutic obstacles were short attention span, amnesia, and persistence of ideas. Adjunctive therapy consisted of nicotinic acid, occupational therapy, and music. Improved patient morale, cleanliness, and general behavior were noted. A by-product of the experiment was an increased cooperation on the part of relatives.

In a 20-month period at the Osawatomie State Hospital, in Kansas,[44] a total of 28 patients, meeting in groups of 4 men and 4 women, averaging 70 years of age, were treated once a week by group psychotherapy

for periods of two to six months. Group therapy was undertaken in a combination with somatic and milieu therapy. Noisy, aggressive, and very restless patients were given chlorpromazine or reserpine. For those manifesting impaired memory and disorientation, sodium glutamate or pentylenetetrazol (Metrazol) was prescribed. Depressed patients received electric shock therapy. All group members were encouraged to participate in occupational therapy and recreational activities. At the group meetings the patients were encouraged to help themselves to fruit juice and cigarettes and to talk informally about their problems. After introducing the members to one another, the therapist told them that the meetings were for them to become friends, to learn about one another's problems, and to help one another. They were encouraged to criticize the hospital's food, methods, organization, and staff, including the therapist, whose attitude was a passive one of merely listening to what the patient had to say and who interfered only when the patient was shy, silent, or needed encouragement. Considered an understanding brother, the therapist often answered questions of general interest to the group. Among the topics favored by Wolff's patients were religion, past life, paradise, life after death, and heavenly-reward expectations.

Twelve patients, nearly one-half the total group, of 28, treated in this fashion by Wolff [44] were sufficiently improved to be discharged from the hospital to their families or to nursing homes. The improvement was manifested by increased self-esteem, decreased hostility and delusions, and improved socialization. While they still showed signs of chronic brain syndrome (defective memory for recent events), they were better oriented, in better contact, and more interested in their surroundings or ward activities; had a more optimistic outlook on life; dressed more carefully; were friendly and cooperative with other people, and had lost some of their psychosomatic complaints. The greatest obstacle to improvement in these geriatric patients was their ambivalence about leaving the hospital. Family cooperation was required to handle this problem.

A series of papers by Linden [25-28] presented a considerable body of data on gerontologic group psychotherapy. He emphasized resocialization of the individual, and recognized a greater need for promoting tranquility, a potential for happiness, and a return of some degree of self-sufficiency, rather than for producing deep insights in a group whose years are numbered. At the State Hospital in Norristown, Pa., a group of 51 women whose average age was over 70 met for more than two years, twice a week, for one-hour periods. Each group therapy session was attended by a majority of those enrolled. A period of indoctrination was followed by an effort to encourage free association, uninhibited public expression, and mutual interpretation. At the onset the limited success gave the group a discouragingly quiet aspect. The members waited dependently and helplessly for the lectures from the doctor. A rotation method of calling on as many members as possible and questioning them about biographical items proved more stimulating, yielded fewer embarrassing silent periods, and kept the group alert. Much later an educational element was introduced by members volunteering brief presentations of subjects of group and seasonal interests. There seemed to be no real group formation, and the conversations that occurred were stereotyped complaints between individual patients and the therapist about the food, alleged mistreatment by hospital personnel, and going home. Linden said that "a pall of gloom charged with slight expectancy hung over the group and was punctuated by stifled laughter in response to an occasional witticism."

For about six months the leader patiently persevered, keeping up a nearly steady stream of informal talks on a variety of topics, and questioning, coercing, and chiding patients into talking about themselves. The total effort seemed futile, and the temp-

tation to give up the group as an unsuccessful experiment was very strong. The first noticeable effect of group therapy was a pronounced change in the atmosphere of the ward. A morale factor was emerging as the atmosphere of pessimism, inactivity, stagnation, and futility began to diminish. In a few months ward visitors detected and commented on the change. A crucial turning point occurred, however, when the physician leader, called to the telephone from the session, left the group under the guidance of a nurse, and on his return noticed the group was in spirited discussion with the nurse. This was not always the case, to be sure, for when the nurse conducted almost the entire session the lively spirits at the beginning of the hour waned, and the return of the male therapist was greeted with some exuberance. Once the nurse was introduced as co-leader, true group identity and conventional psychotherapy ensued in the seventh and eighth months. Discussions on the items of feminine interest—clothing, cosmetics, personal hygiene, living arrangements, the cattiness of women, jealousy, the nature of men, and the like, which up to the eighth month were offered only to the female therapist—now in the eighth and ninth months were increasingly directed to the male therapist. The reverse also occurred. Interest in the group became keen and strong. Affectional ties sprang up. Hitherto neglected recreations, occupational therapy, the library, card games, and movies received increased attention. Parties, picnics, dances, and group singing were often discussed, planned, and even financed during group sessions. After about the 12th month of therapy the subjective personality of the building had changed completely, and with it its reputation.

Only after the nurse was introduced as the co-leader and occupied an authority-sharing position did a group *ésprit de corps* or identity develop. Linden [26] reviewed the group development and presented the following analysis:

> During the early period the helplessness and dependency of the bewildered aged women forced the physician-therapist to become the dominant personality in the group. Consequently, he was the recipient of all the individual attitudes. He assumed the role of the strongly authoritative, but protective, parental figure toward whom appeals for succor and support were directed. Submerged in the pathetically pleading atmosphere was a sycophantic transference which went unrecognized because of its heavy disguise. The introduction of the nurse co-leader presented a multifaceted factor, one of its early effects apparently being a reawakening of oedipal strivings. Since the male therapist's mere presence stimulated rivalries at this juncture, the female co-leader served to intensify them. She was also an object of emulation. The patients reestablished feminine identifications and progressively returned to adult-like sexuality. This occurred in more than half the patients as revealed by their dress, jokes, and dreams. The commonality of affect gave the group solidification and identity. Thus a simultaneous morale factor developed which became the agency through which affect, externalization and lateralization could be realized.
>
> The elements characteristic of senility, of vacillating amnesia, capricious disorientation, and variable confusion which may have presented an insurmountable obstacle to therapy were partially overcome by two factors: the spacing and frequency of the sessions, and dual leadership. The first gave the group a predictable, routinized, serial continuity generating a rhythmic expectation in the participants. This allowed them to find other realities as well as space-time guideposts. Dual leadership reinforced the first factor in the following way. The importance of the male therapist waxed and waned with his appearance and withdrawal during his visits to the ward and group sessions. The nurse, on the other hand, was a benevolent authority on the ward. She remained with the patients so that she continued to serve as the supportive and therapeutic factor during the intervals between group sessions.
>
> The initially faint transferences are provoked and stimulated to bolder expression by the elements of wholesome competitiveness and rivalry generated by appropriate therapists. Dual leadership accomplishes for the senile group what individual leadership cannot because it is (1) an affect activator, (2) a social reality exemplifying the roles of the sexes, (3) a structured opportunity for appropriate object choice, and (4) a synthesized form of cultural authority and thereby represents pictorially and dynamically many familiar social forces.[26]

Of the 51 group therapy patients, 23 left the hospital for their own homes, county homes, or placements, or were ready to leave after an average of 54 hours of group

therapy, whereas of the 279 patients in the same building who were not group therapy patients, 37 left or were able to leave the hospital.

These examples indicate, as does the one of the Columbus Receiving Hospital,[33] described in the section on "The Day Hospital," the broad spectrum of use and type of group therapy in the management of the elderly psychiatric patient.

Home for the Aged

Although mental hospitals logically should be looked upon as places where active treatment prepares the patient to return home, in actual practice this is not the case. All too often, mental hospitals have become domiciles for terminal custodial care, for which they may not have been well designed or staffed. Increased interest in the provision of more complete services, including psychiatric, in homes for aged persons has been an outgrowth of these circumstances.

Goldfarb[13-21] has described one such home, where the goal has been to maintain aged persons within its walls in active relationship to the general community, with a maximum of freedom, comfort, dignity, and, where possible, some productivity. The transfer of cases to mental hospitals dropped sharply when the amount of psychiatric aid available increased, as psychiatric techniques improved, and as the staff acquired more psychiatric understanding. Patients who heretofore had been considered intolerable, unmanageable, or risky were handled without locked doors or barred windows and with relatively little augmentation of nursing and medical care.

Most of these persons who came to the attention of the psychiatrist are also otherwise chronically ill. This nonpsychiatric disease process usually plays a part in determining the psychologic and emotional attitudes displayed, and, conversely, psychologic attitudes probably influence the progress, severity, or symptomatology of the illness. Because physical illness is common and fears about it are also common, good nursing and medical care are the foundation for psychiatric care. Indeed, sound sensible medical practices themselves have psychotherapeutic influence. On the other hand, medical care without psychiatric understanding is often inadequate. The psychiatrist who treats the aged should possess, and be prepared to use, reasonable general medical skill in cooperation with the general medical staff.

The need for psychiatric care, in addition to specific and supportive measures, is probably not being met even to the degree possible because many psychiatrists, when confronted by chronic illness in older persons, feel a degree of uneasiness which produces a nihilistic approach. True, the extent and severity of the physical ills, when compounded by social and economic problems, are as discouraging as is the impressive amount of psychopathology which emerges under these circumstances of diminished personal and material resources. Goldfarb feels that the very helplessness of the aged, dependent, chronically ill person impelled to seek assistance weakens possible therapeutic measures, which need not be time-consuming, and which consist mainly of reassurance and support in brief, evenly spaced interviews, wherein the physician demonstrates an interest in and ministers to the patient. The patient feels safer because medical skill has been placed at his disposal and he has gained and held a powerful ally. A great deal can be accomplished toward relieving mental suffering, improving social behavior, and relieving symptoms of emotional overaction by means of 10- to 15-minute interviews once or twice a week, or even by "catch-as-catch-can sessions here or there on the ward or in the corridor." Flexibility in handling the aged sick is paramount. Detailed case material illustrating this approach will appear in the section on "Individual Psychotherapy."

The Day Hospital

In April, 1946, at the Allan Memorial Institute of Psychiatry, in Montreal, an experimental form of hospitalization was initiated.[4] To this hospital, called the day hospital, patients came at 9:00 in the morning, remained throughout the daylight hours, receiving the appropriate forms of treatment, and returned to their homes at 4:00 o'clock in the afternoon. All types of psychiatric patients were admitted, the only criterion being that they should be well enough to stay home overnight. From this modest beginning a number of variations have been developed in various parts of the world. The following two examples illustrate the use of the day hospital in the management of the elderly psychiatric patient.

In the geriatric unit of the Cowley Road Hospital, Oxford, England, is a day hospital for patients of all types where no distinctions are made for psychiatric, as opposed to other forms of medical, illness. Resources for immediate admission or readmission to an active medical unit, along with physical treatments for psychotic patients, are available. The Oxford day hospital, housed in the occupational therapy department of the geriatric unit, is under the immediate control of the occupational therapist. Once in the day hospital, the patient is given a program of activities consistent with his abilities and disabilities, and there is considerable individual variation. The social workers do much of their work in quiet interviews in the occupational therapy department, rather than by formal interview in an office. Cozin[5-7] presents a case protocol to exemplify what can be accomplished in such a unit.

A widow of 63 . . . was referred from a mental hospital for continued care in the day hospital. Following the sudden death of her husband, whom she appears to have dominated throughout married life, in 1951 she sustained a personality collapse displaying mental symptoms of paranoia and confusion. Incontinence of urine . . . has recurred at times of emotional stress, disappearing again as the situation improved. . . . Relatives to whom part of the house had been sublet were unable to remain more than several months because of her untidy, unpredictable habits, occasionally urinary incontinence and strange food habits. Her relatives pointed out that she had always been moody, interfering, selfish and easy to take offense or to suspect selfish motives in others. She would retire to bed for several days when thwarted. Repeated clinical observations revealed . . . a strange lack of interest over gross self-neglect; her reported delusional episodes caused her relatives and doctor much concern.

The diagnosis of a space-occupying lesion in the left frontal region . . . was confirmed in part by electroencephalography a year ago. . . . Three months later a transient epileptiform fit and several attacks of fainting and vomiting appeared to supply additional confirmation. Neurological investigation, however, has been more inclined to regard the symptom complex as due to hypertensive encephalopathy (blood pressure 215/120 Hg).

Since attending the day hospital each afternoon, considerable improvement has been noted by the occupational therapist. In spite of now living alone, urinary incontinence has entirely ceased. She dresses neatly, no longer neglects herself, and does her own shopping. The occupational therapist has reported a steady increase in sociability, and notes that she takes an interest in other patients' work and that she is beginning to initiate conversation with others. She is very helpful to other patients and volunteers to make tea and wash up. She attended regularly and punctually each afternoon, and was a very good, although somewhat automatic, worker.

Thus a bereaved, lonely patient with a difficult personality, . . . intellectual deterioration, hypertension, and a possible space-occupying lesion in the left frontal cortex, nevertheless demonstrated considerable improvement in personality and managed to live alone supported by the relatively small hospital services provided by the day hospital. Her ability to cope with the admittedly difficult situation was increased by the interest of the occupational therapist and the social worker in her.

The day hospital unit at the Receiving Hospital in Columbus, Ohio,[33] which is set up as a psychiatric, but not exclusively geriatric, unit has a daily routine as follows: The patients gather at 8:00 o'clock in the morning as an informal group and over coffee discuss their experiences since the previous day. A psychiatrically trained nurse is present at this get-together and

tends to lead in the discussion. From this meeting are gleaned many points leading to an understanding of the individual patient. The hour from 9:15 a.m. is spent in occupational therapy. From 10:15 to 11 a.m., the patients are seen by their individual therapists if this is requested by the patient. It is also at this time that various physical procedures are carried out four times a week. At 11 a.m. the men and women gather in groups according to sex for group psychotherapy, led by one of the psychiatrists. After lunch there is a rest period, during which the patients may read available pamphlets on mental hygiene or a book of their own choosing, or lounge and talk among themselves. Three afternoons a week, after the 2:00 to 3:00 p.m. recreational therapy led by a nurse or an occupational therapist, there is mixed-sex group psychotherapy. At 4:30 p.m. the unit closes, and the patients return to their respective homes. Practical talks are given by the dietetic and social service departments once a week. Individual therapy is made available only upon request of the patient. To round out the program once a week, the relatives of the patient meet as a group with the social worker.

A case history is descriptive of the approach in the unit.

> A rather large, aggressive, 62 year old, successful, white, professional businessman . . . was admitted to a closed unit of the hospital [with] a severe, incapacitating tic which consisted of a marked jerking of the entire upper half of his body with an accompanying expiratory grunt. [When] this symptom was brought under control, he was transferred to the Day Unit, [where] he was aggressive and frequently hostile, pushing himself to the head of the line in front of the women patients in the cafeteria, cheating at cards and being generally vociferous during the recreation period. The patient group was cold and rejecting of this behavior and finally effective in helping to produce a change in it. The attitude of the staff was to be firm but non-interfering except when it seemed necessary to maintain some order. Eventually, as he changed, he became leader of the group and was accepted by all the patients. He related well in formal group psychotherapy sessions, and his changed behavior paralleled his developing a better relationship with his individual therapist, which led to his working through previously unexpressed material. Here was an aggressive, compulsive man of retirement age who was finding it difficult to give up gracefully [and who] on the unit had a corrective living experience, gained some understanding of his problem, and so was able to make a satisfactory readjustment to his changed life circumstances. This patient was in treatment 13 weeks and follow-ups reveal that he is continuing to adjust well in a mildly compulsive way.[28]

Individual Psychotherapy

"The age of the neurosis is more important than the age of the patient." So said Karl Abraham[1] in 1919, writing on the applicability of psychoanalytic treatment of patients of advanced age.

Since the fallacy of attributing all emotional disorders of persons living 65 years and more to organic cerebral changes, for which nothing could be done, has become more widely apparent, many psychiatrists have attempted various individual psychotherapies with favorable outcome.

Diagnostic classifications and groupings have been proposed as a first step in planning the psychotherapeutic effort.[3,8,31,32] Attention has been called to the value of individualization of treatment in the aging period. Various psychotherapies have been utilized.

Goldfarb[13-21] has written extensively of his experiences with the aged, from which he has developed a form of brief therapy for those behavior disorders with interrelated psychologic and somatic elements which he has based upon an adaptational frame of reference utilizing the rationale whereby the behavior disorders of the aged were viewed as maladaptive efforts, arising from a sense of helplessness and fear, to gain pleasure and satisfaction by dominance of parent-surrogates. The assumption was made that the senescent's behavior was "goal-directed, motivated problem-solving," albeit inefficiently, with poor psychologic and emotional tools, which emphasize their loss of resources. These persons utilize a dependency pattern, which Goldfarb felt became a therapeutic resource when the

patient was assisted toward the illusion that he had achieved success in manipulating, controlling, dominating, or directing persons around him. The therapeutic transaction was one wherein the patient was permitted to indulge in the illusion of a victorious struggle with the powerful parent-surrogate therapist. The struggle was purely an illusion on the part of the patient, a distortion of reality, wherein the therapist accepted the role of feared and resented parent and permitted himself to be won over in a manner which seemed to the patient's best interests. The promotion of the illusion that the therapist was mastered and that his power was available to the patient was a source of pleasure for the patient whose healthy, affectionate attitudes were so poorly developed or whose sense of worthlessness and disbelief that he could be loved was so great that the only bond between people he could envision was one of power. In these patients the provision and assurance of love and care was not enough; the significant feature in their improvement was the illusion that they had earned, won, or wrested such care and love from someone. When the behavior of the therapist conveyed to the patient that an emotional bond had been formed with him, the patient reacted as though dominance over a powerful figure had been achieved. Whether this domination of the therapist was obtained by superficial submission and compliance or by a behavioral expression of anger on the part of the patient, it meant two things to him: (1) that the powerful person's services were available on call, and (2) that the patient himself had proved his great powers by his victory. The experiences in this treatment method led Goldfarb to conclude that, while "the psychiatrist may believe himself acting as a friendly advisor, counselor, or supportive figure, the success of treatment actually rests on the patient's secret and somewhat contemptuous conviction that he has tricked and overpowered the doctor. This conviction he masks from himself as well as from the doctor. Unless the doctor is endowed with a magic mantle of power, such a victory is hollow, meaningless, and therapeutically valueless."

Here is an example of the approach used by Goldfarb and Sheps.[16]

"Mr. T., 80 years of age, a native of Germany, who never married, had been a lifelong seclusive misanthrope, and a chronic alcoholic. He was considered a misfit in the family and left home when 18 years old because of a scandal involving a young woman. He came to the United States in 1890 by himself and worked in various restaurants and hotels. . . . In 1943, he underwent a prostatectomy, and in 1946, at the age of 74, he entered the Home for Aged and Infirm Hebrews. For three years he made a choleric marginal social adjustment. In 1949 cerebral thrombosis caused right hemiparesis which confined him to the infirmary. There he became a serious problem because of explosive angry outbursts with threatening and assaultive behavior, set off by the doctors' and nurses' attention to his severe conjunctivitis. He was relatively immobile, and sulkily refused to make efforts which could help the staff determine the true extent of his disability. He was referred for psychiatric help and therapy was instituted in 1951.

In the first two very brief sessions he was questioned about his angry behavior in such a way as to moderately reinforce his preconception of the therapist as an injunctive, prohibiting, and threatening parent. In the third interview he angrily denounced the therapist and the Home staff for implying that he was mentally ill. He went into a lengthy diatribe about how his eyes had been spoiled by an incompetent doctor before he came to the Home and how the trouble was being perpetuated by the incompetent Home physicians who prevented him access to better ones. His hemiparesis he attributed to a trifling insult which the physicians aggravated by neglect and inept therapy; for example, the rehabilitation procedures which he violently opposed. In the session he was encouraged to vent his anger on the medical and nursing staff and especially toward the therapist who appeared suitably distressed, cautiously self-defensive, and semiapologetic without ever admitting that the patient was actually correct.

At the end of ten minutes it was tactfully agreed he could leave the interview. He left with an air of righteous indignation triumphant. For the next few days he was relatively silent and cheerful, there were no angry outbursts, his attitude was that of one who has bearded the lion in his den and emerged victorious; he was contemptuous of the harmful potentialities of those about him and submitted to their ministrations

without protest. Needless to say a further opportunity for him to vent his anger and emerge triumphant was offered in another five-minute interview about a week later.

In the fourth interview, two weeks after the first, there was a change in his attitude. He seemed to feel safe with the "defeated" therapist who seemed none the worse for wear. He spoke angrily of the staff and his plight, but as though to an ally. He came to this session, for the first time, in street clothes which he had demonstrated he could help put on himself. The therapist listened sympathetically, suggested the patient could probably do a great deal despite the opposition he felt existed, and offered to have a medication added, which was done. Following this, in a series of interviews for "backsliding" on the part of the patient, there was, according to the needs of the patient, a shifting of role-playing between that of the strong parent who can be vanquished and that of the strong parental ally. After eight interviews over four months there was some improvement sustained for eighteen months. The patient altered his status from one of angry immobility to relatively peaceful but limited ambulation.

To recapitulate briefly: This man whose lifelong feelings of helplessness were reinforced by hemiplegia and the concomitant effects of brain injury handled the anxiety this generated by an angry show of force. This was ineffective in overcoming his fear and in fact increased his retaliation fear. In this setting he was depressed, immobile, and had explosions of anger. The therapist stepped in to provide him with an illusion of omnipotence through triumph over a powerful, threatening physician. Some omnipotent feelings could only be short-lived but were later replaced by acceptance of the "defeated" therapist as a powerful parental ally. Safely entrenched with him, the patient's helplessness decreased, his anxiety diminished, and reparative rage was unnecessary so that there was simultaneous improvement in behavior and decrease of his suffering. His dependence on the therapist was assumed, without incident, by the social worker, whom the patient identified with the therapist. When she "abandoned" him for a vacation, he subsided into depressed and sullen immobility and then reacted with episodes of assaultive rage of such violence as to require transfer to a psychiatric hospital before opportunity for further therapy.

A modified psychoanalytic approach to the senescent has been developed by Wayne.[42,43] In essence, after sufficient historical material has been obtained to permit the construction of a genetic, psychodynamic formulation and a basis for understanding transference, a goal limitation is decided upon. Although an understanding of the patient's characteristic way of handling situations is sought, structural character changes are not necessarily the therapeutic objective. Where there is a crucial current problem, this is employed as the main stream in therapy, and the patient's interest and hope are thereby maintained. While it follows that many personality problems are not entirely worked through, this often is not indicated in the aged. The therapist must make an active effort to create a consistently warm, empathic climate while he plays a relatively active role in directing therapy. The vis-à-vis position is used, so that the patient can see the therapist "reacting" with positive emotional rapport, which reduces anxiety and minimizes dependence. The patient must be given a readily perceivable part in solving his own problems rather than being allowed to fall into a dependent-passive attitude. Some time must be devoted to realistic discussions of the cultural attitudes toward the elderly, the immediate living problems, and the physiology of aging. The duration and frequency of therapy must be judged individually. Scheduling is flexible, and the plan is to decrease sessions progressively until therapy is terminated.

An extensive case report of Wayne's approach has already appeared.[43] The following is another less detailed example.[42]

Mr. D. may have reached the compulsory retirement age set for university professors. After 30 years of efficient service he is superannuated, though he still may be a capable and efficient teacher. He feels depressed, agitated and unworthy. He believes his wife no longer loves or understands him, and after many years of satisfactory marriage there is talk of separation and divorce. The children become emotionally involved and take sides. A personal emotional problem has developed into a family imbroglio. With this situation as the focal point of interest in psychotherapy, it becomes possible for the patient to begin to understand his competitiveness towards other instructors and even towards his wife and children—feelings which were never a problem under circumstances more favorable to him. In therapy he can be shown that, in his current "depreciated" state, he feels a sense of de-

pendence on his wife which his masculine pride makes it necessary for him to hide. He can become aware of present feelings of impotence, which differ in no essential way from similar feelings earlier in life but which occur this time within a different framework and with another kind of catalyst. His intense anger towards every frustrating agency can be minutely examined and shown to be the source of feelings of guilt, depression and unworthiness.

In one's approach to the individual psychotherapy, it is well to be mindful of the following representative comments:

Too many physicians, nurses, and social workers have in the past allowed their sense of frustration at not being able to understand the aged to be projected as resentment against old people. Those of us who have worked with the aged know how challenging and stimulating this work can be, what wonderful patients old people are, how appreciative they are of small attentions, and what marvelous results modern medicine and surgery, as well as psychiatry, can achieve even in the highest age bracket.[45]

Direct psychotherapy of older people is not so hopeless a task as was once thought. While the disturbances involving specific neurotic and psychotic manifestations require the intervention of the specialist in psychiatry, a large number of the emotional problems presented by these patients can be dealt with satisfactorily by the medical men.[12]

I find my work with the aged most instructive. The handling of their neurotic illnesses is fundamentally similar to the treatment of such neuroses in younger persons.[48]

Psychoanalytic psychotherapy can definitely help the final task of self-acceptance.[22]

Active psychotherapy is possible and can be successful in more than 50% of senile cases, even when shock therapy has been applied unsuccessfully.[29]

The treatment of neuropsychiatric disorders of the aged must be a community project in which neuropsychiatrists, internists, and social service workers must contribute materially to the maintenance and preservation of the physical and mental health of this group.[28]

The therapeutic approach in the treatment of the aged is now as wide in its orientation as is the treatment of younger patients. The emphasis is directed to the prevention and the early therapy of psychiatric conditions as well as to the treatment of those disorders which have progressed to the point where the patients require hospitalization.[8]

Though Sigmund Freud was pessimistic about psychoanalytic therapy with the elderly, it has proven recently to be quite successful.[22]

Meerloo's[20,30] method of analytic psychotherapy is exemplified by the following protocol:

A 72-year-old bachelor [had] a syndrome of agitated melancholia after a gallbladder operation, the first disease in his life. He cannot sleep any more and he cannot stop crying. The slightest noise disturbs him. All the steam-pipes of the central heating system are plotting against him. He begins to worry about his food, that it seems to contain poison. He cannot concentrate any longer on reading and he becomes impotent.

This man was sent to me for psychotherapy after electro-shock treatment had made him more agitated, and institutional treatment seemed to be indicated. During his first interview, this highly intelligent man showed himself very *hostile* toward every form of medical treatment. All he wanted was to obtain sleeping drugs, which he did not get from me. He accused the surgeon and the shock-therapist of having caused his predicament. In the beginning he resented my questioning, because up to now nobody had bothered to question him about himself. During his whole life, our patient had been a stingy, compulsive man, financially responsible for his family in which mental and physical diseases were prevalent. He often had nightmares. Last night's dream, however, was a typical sex dream of women lying in his arms. In relating the dream he started to laugh for the first time, and readily admitted that he resented his physical illness and his weakness very much. He admitted that he used the surgeon as a convenient scapegoat.

We started an analytically oriented form of psychotherapy of two sessions a week. The payment roused the greatest resistance. He wanted to pay me only by sending some of his rich friends to me.

All in all, we saw each other 19 times in the course of 2½ months; then, grumbling about the final payment but much improved, he left me. Now, 3 years later, he is still in good shape. He reports to me from time to time.

During the period of therapy which started with a rather good interpersonal rapport, the nightly anxiety disappeared after the third session. The same thing happened in regard to the steam-pipe hallucinations which he began to explain not as a plot against him but as a result of his own oversensitivity. He produced dreams at every session, which he started to interpret himself without intervention. So uppermost were they in his mind that some dreams pictured direct childhood memories; special anxieties made their appearance: anxiety about taxes, about food, about losing affection. Other anxieties involved the fear of blackmailing women, or of being eaten by a dog.

There were repeated nightmares and feelings of suffocation.

In a later period his basic fear of nearing death came more clearly to the foreground. There was fear of sleeping-drugs—fear that they would not work too well or would kill him. His suitcase was stolen, as a magic defense against the last trip to nowhere. Let me report one dream precisely: "I was in the railroad station buying a ticket. There was not much time. The clerk stood on the same side as I stood, and gave me some change. I put it with the ticket in my side pocket. Will I find the ticket? Will I be able to catch the train? The loudspeaker voice called the passengers to track 999."

In an orthodox analysis, the attention would be directed more to specific symbolism. In this case I limited myself to letting the patient understand the general patterns. Track 999 was for him the last station of departure. He spontaneously interpreted the other part of the dream as his unwillingness to go. The clerk was the analyst selling him the certainty of an eventual trip he did not want to take.

In later dreams the girl forgave him his impotence. And in the last dreams he let other people jump out of the window. In the meantime he had been able to go back to work.

As far as his own anxiety feelings were concerned, he had made his own pact with death, and let other people go before him. Our transference relation was always, as he felt it, on a teacher-student basis. He, by producing unconscious material, was instructing me. After his cure he stuck to that notion and kept on sending me clippings from time to time.

The importance of this case lies in the therapist's role: indeed, he did play the part of a student. This role-taking freed the patient from his anxiety and hallucinatory distortions of reality. This situation was in contrast to what he felt had been an authoritarian intrusion by the surgeon and shock therapist into his illusion of longevity. As a matter of fact, this patient was a real teacher. He shared his own insight regarding the fallacies of old age. He was a sharp and witty observer and part of his experience has been used in this paper.

Transference and Countertransference

There are some technical points to consider in the psychotherapy of the elderly, which for purposes of exposition may be divided into transference and countertransference factors.

Linden,[27] in his extensive discussion of his concept of the transference in gerontologic group psychotherapy, has stated that there are three forms of actual transference in the aged: (1) neurotic transference, which is personality specific; (2) recession transference, which occurs concomitantly with physiologic regression, and (3) sociologic transference, which refers to feelings the aged as a quasiminority group have toward an outside culture that rejects them, and the manner they transfer these counterattitudes to any culture representative. Linden believes that the transference attitudes of the aged are determined by restitutive phenomena, which, in turn, are determined by mechanisms utilized to manage masochism, recessive feelings, and counterreactions to the elder-discarding trends of our culture. Using clinical material, he describes 11 types and 7 subtypes of transference, along with speculations regarding their psychodynamics.

When older people who feel themselves lost in a hostile world are given time and shown patience by a therapist, a strong transference often results. The transference in therapy with the aged differs from that with children and younger adults because the therapist often is considerably younger than the patient and may represent for the patient not a parental figure but one of the patient's children, or frequently a combination of parental and filial images. There is no therapeutic indication to resolve the transference, according to Meerloo,[29] who has found that "even when the patients themselves ask for the dismissal signal of being called 'cured' it is better to let them come back from time to time, so that they may feel that contact is not lost. The same strategy is to be followed with patients seen in private practice.

On the other hand, Grotjahn[22] has stated:

> The most favorable transference situation in analytic treatment of the elderly is one which I call the "Reversed Oedipus Constellation." In my opinion it is necessary to allow the development of such transference situation, to experience it fully, to utilize it, to interpret it, and finally to dissolve it again and integrate the entire experience. It is possible, however, that the experience of this transference neurosis has to be much stronger and

much more intensive than in the psychoanalysis of neurotics of younger age. This may constitute a principal difference between the psychoanalysis of a psychoneurosis and of an old age psychosis. Differently expressed, it could be considered an essential difference between working through and living through.

The patient is allowed to see in the therapist the younger person. He may later accept in his therapist the representative of the younger generation and perhaps of the future. It was once the task of the son to work out his conscious and unconscious relations to his parents. It is now time for the father to go once more through his unconscious relation to another man in reversed order. In relation to the therapist, he has once more the chance and task to analyze in the transference relationship the Oedipus complex, but this time in reverse. The father should not submit to the son, nor should he kill him like the father of Oedipus tried to do. The father should realize that his life may be continued in his son.

Therapy with the elderly, as with any age group, involves the personality of the therapist and countertransference reactions. A young therapist may feel self-conscious and apologetic, while an old therapist may feel superior and exemplary. A thorough awareness of one's attitudes toward his parents, and even his grandparents, will assist the therapist in eschewing the complications which arise when the unconscious identifications, hostilities, guilts, and dominations of the therapist intrude and confuse the therapy. For example, the therapist may become anxious when the symbols of old age, typified by loneliness, helplessness, feebleness, and economic distress, arouse his deep-rooted, archaic castration anxieties and fears through an unconscious identification. When the therapist's narcissism is hurt by the irreversibility of some factors in his elderly patient's situation, he may react, out of a sense of frustration, with harshness, impatience, or even hostility, which, in their turn, may induce further complicating reactions in therapist and patient.

It has been suggested [22]:

The therapist does not need to idealize his elderly patients. This would be unrealistic and is a defensive compensation against underlying hostility. Such a therapist may offer himself as a submissive child looking up to his patients as parental images. He expects them to be strong, powerful parental figures which they neither are nor should be. A therapeutic attitude based on such unconscious expectations does not help the confused, insecure old person who looks for the stronger, younger, healthier person with whom he can identify and who may satisfy some dependency needs.

Many different variations of countertransference difficulties may be observed. A therapist who wishes to be older than he is may hide unresolved sexual conflicts behind such a wish. He hopes in an unrealistic way that the old persons will live beyond sin and sex, like little angels. Such a therapist may not be tolerant and realistic enough to understand his elderly patients in one of their most important sources of conflict, guilt and depression.

Most therapists are agreed that if there ever is a time when sexual information and advice are needed, it is when people reach old age, because the sexual feelings of the elderly create a confusion which is often compounded when countertransference denies sexual gratification to the old. The therapist has to work these feelings through with his elder patients, who are often so frightened and ashamed to reveal them that enforced abstinence and increased guilt predispose to an intensified depression.

Meerloo [29] comments:

The study of sexual problems in the old-aged has only just begun. Superficially it appears as if there were less demand in this age group. However, in deeper analysis we find that under an apparently tranquil surface there may lie a sleeping volcano full of underground turmoil.

The good son-therapist should not feel guilty for being younger. An almost paternal attitude may be developed, if necessary; but above all the therapist must be secure enough to deal with the older patient's hostility and with his efforts to make the younger man feel guilty and defensive for being younger. Ideally, the therapist who has resolved his unconscious feelings of guilt and ambivalence toward his own parents will not be overbearing, patronizing, idealizing, or avenging, but will be able to "offer himself quietly and calmly in order to repeat and analyze the reversed Oedipus situation as a therapeutic experience." [22]

Summary

This review of the management of elderly psychiatric patients by primarily psychotherapeutic methods indicates that any aura of therapeutic nihilism in regard to this increasing patient population is unjustified.

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Culture and Mental Disease, with Special Reference to Thailand

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The following ideas have been expressed regarding the occurrence of mental disease in different cultures: 1. Mental disease does or does not occur with the same incidence everywhere. 2. There are or are not variations in the incidence of specific types of mental disease in different cultures. 3. There are or are not variations in the symptomatology of some or all mental disorders in different cultures. A review of the literature shows that most writers limit themselves to one part of this problem and do not discuss all the possibilities mentioned above. A few authors, showing various studies and conclusions, are cited.

Lin,[9] who did a thorough psychiatric and sociological survey of three Chinese cultures in Formosa for the period 1946-1948, inclusive, found that the incidence of major psychoses and epilepsy did not differ appreciably from that of other countries. On the basis of the criteria for diagnosis in the department of psychiatry at National Taiwan University Hospital, 214 persons, or 10.8 per 1,000 population, were diagnosed as mentally ill.

Some writers claim there is a low incidence of mental disease in primitive societies, and most of them feel that this incidence increases with contamination by other cultures. In his study of the Papuans of New Guinea, Seligman stated[14]:

> There is no evidence of the occurrence of mental derangement . . . among natives who have not been associated with White Civilization. . . . Apart from brief maniacal attacks . . . the psychoses do not occur except as the result of stresses set up by white influence.

Carothers,[3] in his study of 558 Kenyan Africans, the first admissions to a Kenyan hospital for a five-year period, found the incidence of all disorders except "frenzied anxiety" to be consistently lower than that of American Negroes. The Kenyan admission rate from 1939 through 1943 was 3.4 per 100,000 of the population per annum, as compared with 57 in 1939 in England and Wales, a variation of between 72 and 86 from 1917 to 1933 in Massachusetts, and 161 for Negroes alone in Massachusetts during the same period. After allowing for factors such as the mentally sick or defective being deliberately killed, their being housed in other institutions, their being unnoticed, their being deliberately thrown out of their homes or allowed to wander off, or their being looked after at home, Carothers concluded that these factors could not possibly account for such a small incidence, and hence that mental disease occurs much less frequently among the Kenyan Africans than among American Negroes.

A few observers find variations in the incidence of specific types of mental disease. For example, after Kraepelin observed the Javanese, he said: "The manic-depressive psychoses are definitely less frequent among the natives than among the Europeans, but they are not totally absent."[7] He further observed that "conditions which we may more or less reliably diagnose as mental epilepsy are relatively frequent. . . . Dementia precox as we define it today was particularly frequent." Upon visiting a mental hospital in Singapore, Kraepelin found almost 80% of the

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patients representing pictures of dementia precox. Laubscher, in his study of two southeast African Bantu tribes, found a high incidence of schizophrenia in relation to other disorders and commented: "From my experience it appears that schizophrenia predominates over all other psychopathological conditions." [8]

Field,[5] in a two-year ethnopsychiatric study in rural Ghana, examined 41 known chronic cases of schizophrenia, or 1% of the total population of 12 Ashanti villages. New cases of various mental disorders were found among the pilgrims at 28 shrines of native deities, most of which have sprung up in the last 40 years, "in striking response to a sense of insecurity which can be correlated with the growth of the cocoa industry . . . and a breakaway from the old tribal security based on traditional roles." While the proportion of mentally ill pilgrims was small, there were certain symptom trends, of which fear and guilt frenzies were among the commonest. Among rural women depression was the most frequent mental illness, with the older age group characterized by well-defined classic involutional depression with agitation. Field also noted two cases of "obsessive-compulsive psychosis."

The idea that the symptomatology of specific types of mental disorders varies from culture to culture is illustrated by Kraepelin in his comparison of the Javanese and the European patient. He said [7]:

> The individual clinical picture shows very significant differences despite great over-all similarities. . . . None of the common symptoms were absent among the numerous varieties of dementia in the sense of our dementia precox, but the picture was a great deal less varied than we see it at home. Particularly catatonic manifestations among the natives were very rare; auditory hallucinations played a minor role; delusions were either completely absent or only faintly suggested. The start of depressions could seldom be diagnosed; severer states of excitement were equally rare. In the manic-depressive psychosis, pronounced depressions were almost totally absent, and feelings of guilt were never expressed. Clinically, manic excitement was less pronounced and drabber.

Laubscher, on the other hand, observed that the South Africans exhibited the same symptoms of schizophrenia or epileptic psychoses, on the whole, as were seen in Europe.

A special variation in the incidence and symptomatology of schizophrenia in Croatia, the second largest of the six Yugoslavian republics, is reported by Rose.[12] Although Yugoslavia has a relatively low over-all incidence of schizophrenia, the Adriatic coast and its islands—the westernmost part of Croatia—are believed to have a higher incidence than the rest of Yugoslavia. Psychiatrists have noted this difference since 1879, when Vrapče, the first modern Yugoslavian psychiatric hospital, was founded. Rose cites Lopašić's house-to-house survey of mental disease among the entire population (1,500) of Sušac, the westernmost island in the Adriatic, which showed that 9% of the population were or had been mentally ill or retarded, 1.1% of these being schizophrenic. Another study by Kulijenko was based on the birthplaces of schizophrenics who in 1930 were in the Yugoslavian mental hospitals. The figures showed a 1% to 2% incidence along the coast; a 0.5% incidence, mostly in the interior western area, and a 0.2% incidence, mostly in the eastern half of the country. In a third study of one-half of the families on the island of Sušac, 91% of whom have had the same heredity for generations, Dr. Jelašić estimated that the minimum percentage of mentally ill and retarded on Sušac is 7.5%, as compared with 0.6% to 1.0% in Istria (the extreme northern coastal area of Croatia) and 4.5% in the United States. Rose stated:

> Many Yugoslavian psychiatrists feel that schizophrenia from the island of Krk and other Adriatic costal and island regions is often of the simple type, showing a characteristic apathy. Very little catatonia and almost no paranoid forms are seen . . . the characteristic forms of the disease are the paranoid and the excited type of catatonia.

Another problem is that of classifying the so-called different types of disorders, such as latah and amok. The latah reaction, a disorder with the unusual symptoms of echolalia, echopraxia, and automatic obedi-

ence, occurs mainly in Malay but also has been reported as "jumping Frenchmen" in Canada, *imu* in Japan, *mirachit* in Siberia, and *piblokot* among the Eskimos, and has even been observed in the United States.[9] The amok reaction, characterized by a murderous frenzy, also occurs mainly among the Malays. Carothers noted the similarity between the Kenya African's "frenzied anxiety" and amok. Kraepelin did not believe they were unique disorders but regarded them as "certain forms of psychiatric illnesses . . . already known to us." Yap suggests that the latah reaction "has been shown to be understandable dynamically as a fright neurosis and its peculiar symptomatology has been found to be explainable by the principles of topological psychology." [16]

For further discussion of these points, the reader is referred to some of the extensive reviews which have appeared.[6,10,15]

The difficulties in getting accurate incidence rates and descriptions of mental disorders are obvious. The ideal method is a survey similar to Lin's in Formosa. Although such surveys have been made in the United States and Europe for limited areas, practically no such surveys, with the exception of Field's in Ghana and Lin's in Formosa, have been made in Africa and the east Asiatic countries. For most investigators, time, expense, and the need for adequately trained personnel make this method impractical.

The second method, the determination of the number and percentage of different types of hospitalized mental disorders in relation to the total population, is of limited value, since mental hospitals almost invariably are overcrowded. It gives merely a minimal figure of the incidence of mental disease. The recovery rate and the death rate of different diseases also prevent this from being a true index of the prevalence of specific diseases in the total population. It also gives little or no information regarding psychoneuroses and mental deficiency.

The third method is to use first-admission rates to hospitals and is subject to the same defects as is determining the statistics for the total population in mental hospitals. It does, however, seem to have more value as regards the relative incidence of various disorders than does a survey of the total population of the mental hospitals. It also enables one to determine whether the symptomatology is the same for the various types of mental disorders, in southeast Africa, for example, as in the United States.

I spent three months during the summer of 1958 in Thailand for the China Medical Board, Inc., of New York, and made a study of the whole psychiatric situation in Thailand. The country is about the size of France, and its 22,000,000 population is both racially and culturally homogeneous. The majority of the inhabitants are Buddhists, and Buddhism largely determines the culture. The capital, Bangkok, with nearly 1,000,000 inhabitants, has been more influenced by Western civilization than the outlying parts of the country. There is very little manufacturing; the majority of people are engaged in agriculture or lumbering of the vast teak forests.

The two medical schools are both in Bangkok; a third is being built in the north. Medicine in Thailand has been profoundly influenced by Prince Mahidol Sangkla, father of the present king of Thailand (the latter was born in Cambridge, Mass., Dec. 5, 1927), who graduated *cum laude* from Harvard Medical School in 1928. Because of Prince Mahidol's interest, the Rockefeller Foundation later made funds available for a number of faculty members from American medical schools to teach in Thailand. The leading psychiatrists in Thailand received graduate training in psychiatry at the medical schools of Harvard, Pennsylvania, Johns Hopkins, Colorado, and California. The diagnosis and classification of mental disease are the same as in the United States, an important fact in any comparison of incidence of types of mental disorders.

There are five regional mental hospitals in Thailand; they have a total population of 4,800 and correspond roughly to the state hospitals in the United States. However, the latest Thai census, carried out in 1956, lists the number of known insane patients placed in government hospitals, prisons, with families, and in charity and private homes at about 11,000. Dr. Prasop Ratanakorn,[11] director of the Prasat Hospital for Neurological Disorders, has made an excellent analysis of the 1,440 first admissions to the Dhonburi Government Mental Hospital, the largest of these regional mental hospitals. At the end of 1953 this hospital had a total patient population of 1,638. My discussion is based on these Thai first-admission figures and the 1953 U.S. Health, Education, and Welfare Department's census of first admissions to public hospitals, which includes reports from 180 of the 205 state hospitals but excludes the Army, Navy, Air Force, and public health hospitals, psychiatric wards of general hospitals, and private psychiatric hospitals. Admittedly, these are two samples, and not the total first admissions for either country. Of the total 1,440 first admissions to Dhonburi, 3% are for neurosyphilis, including dementia paralytica, as compared with 1.9% in the United States; 5% of admissions are for alcoholic psychosis, as compared with 13% in the United States; 0.5% are due to involutional melancholia, as compared with 4% in the United States, and 2% are for manic-depressive psychosis, as compared with 3% in the United States. Schizophrenia accounts for 70% of admissions to Dhonburi, as compared with 24% in the United States; senile psychoses, for 2%, as compared with 11% in the United States, and no admissions for cerebral arteriosclerosis are reported at Dhonburi, as compared with 15% in the United States. Thailand thus has significantly smaller numbers of admissions for alcoholic psychoses, involutional melancholia, senile psychoses, and psychoses with cerebral arteriosclerosis, but a greater number of admissions for schizophrenia.

Several factors account for these variations in admission rates. Life expectancy in Thailand is less than in the United States; hence fewer people live to the age to develop senile psychosis and cerebral arteriosclerosis. Possibly culture indirectly affects the admission of older persons, for the family tends not to take its older members to mental hospitals. There is considerable evidence of less arteriosclerosis in Thailand (as in many Oriental countries) than in the United States. Whether this is due to heredity, emotional tension, diet, or other factors is still unknown.

Alcoholism is definitely less prevalent, partly because of culture, since Buddhism forbids the use of alcohol. I suspect that the rarity of alcoholic psychosis, as reported by Carothers and by Kraepelin, is because alcohol is either forbidden or unavailable to the natives.

The very high percentage of admissions for schizophrenia (70%) in Thailand, as compared with 24% in the United States, is of special interest. Since 39% of admissions in the United States are due to senile psychoses, psychoses with cerebral arteriosclerosis, and alcoholic psychoses, as compared with only 7% in Thailand, the higher percentage of schizophrenia is partly explained by this incidence. If we reduce the percentages of admissions in the United States for senile psychoses, psychoses with cerebral arteriosclerosis, and alcoholic psychoses to those of Thailand, we would find that the percentage of admissions for schizophrenia would rise proportionately. Therefore, the 70% admission rate for schizophrenia is not so disproportionate as it appears.

Many observers have held Thai culture responsible for the high incidence of schizophrenia; however, Prasop Ratanakorn says that infants and small children are treated with great consideration, played with, and fondled a great deal. Demand feeding appears fairly universal, and little attempt is made to toilet train the child. According to some psychiatrists, this treatment should prevent schizophrenia. On the other hand,

attitudes of submission and nonaggression are drilled into the children. They are usually very well behaved, and some might argue that they conform to Adolf Meyer's concept of the model child, the type prone to later development of schizophrenia. Some believe that restriction of aggression and the time spent by most boys in the priesthood foster schizophrenic reactions. The average Thai youth spends a minimum of three months as a priest before he is 21 years old. Often the priesthood period is longer, and the young priest is told to spend a great deal of time in contemplation, withdrawn from others. To this extent, Thai culture may account for schizophrenia. Prasop Ratanakorn suggests changes in the traditional family structure stimulated by the 1932 political revolution have created conflicts and contributed to the high rate of mental illness.

The Thais' considerable tolerance toward mental illness is epitomized by their saying: "Don't mind the mad and add no blame to the drunk." Superstition still persists, and Phon Sangsinkeo states [13]:

> Certain groups of people still believe that diseases are caused by devils. A man is crazy because a devil is inside him. To get well, he must get rid of the devil. He can do this by bathing with blessed water (hydrotherapy), by listening to a sermon (psychotherapy), or by being beaten with a rattan rod (shock therapy). In the northern and northeastern parts of Thailand, mentally ill patients are called "devil-insanes," not simply "insane," as they are designated in the middle part of Thailand. When the patients recover through these methods, it is believed that the devil is driven out of the person. The patient, by these procedures, becomes his old self again and is accepted as such by the people. He is able to resume his former place in the community. The public puts the blame onto the disease and attaches feelings of hate and rejection to it instead of to the patient. This sounds like good mental health. So this attitude toward the insane is preferable. They are then able to resume normal life, with normal people surrounding them.

It was interesting to find a Thai myth similar to Sophocles' tragedy, "Oedipus Rex" and to Freud's concept of the Oedipus complex. Whether this proves Freud's theory of the universality of the Oedipus complex, or Jung's concept of the collective unconscious, or both, is for my readers to decide.

The largest and most important cedi, or temple, is the site of the story. According to the myth, Phya Kong ruled here many years ago. Astrologers predicted he would have a son who would kill him. When a son was born, Phya Kong left him to die, but an old woman, Yai Hom, took pity on the baby and raised him. This boy, known as Phya Pan, grew to become his people's hero, and he led an army against his father, recognizing him only as the oppressor of the people. Phya Pan engaged his father in single combat near the spot where the Cedi of Prapathom now stands, and killed him.

The myth has various endings. According to Prince Dhani's account, Phya Pan discovered his dead father's identity and, blaming his nurse for the events, killed her.[4] Worried over the two murders, Phya Pan asked the monks how he could atone for his sins. He was told to build a cedi "as high as the wild pigeons flied." The great monument of the Cedi of Prapathom was then built.

Some of my Thai psychiatric friends insisted that Pan married his own mother. Trying to find out more, I went to the man considered the greatest authority on Thai legends. He told me that Pan had fallen in love with the queen but, hearing rumors that she was his mother, consulted the soothsayers. They told him that if she were his mother and he made love to her, blood would flow from her breasts. Pan went home, made love to her, and blood did flow from her breasts. He did not marry her but killed his nurse and directed the Cedi of Prapathom built as atonement.

Now for the third question, raised earlier, as to whether the symptomatology of some or all mental disorders varies in different cultures. My observations on this point are based on spending five mornings a week during my three-month stay—one morning each—at the three psychiatric hospitals and the other two mornings at the

medical school outpatient or general hospital psychiatric wards. I saw many psychotics, a large number of neurotics, and a considerable number of patients with so-called psychosomatic conditions, and I was struck by the close resemblance of all these disorders to what I had seen in the United States and by the rarity of any new or unusual symptomatology. A majority of the patients seen were either schizophrenic or psychoneurotic. Most of the schizophrenics showed the characteristic paranoid picture, with delusions of persecution and auditory hallucinations. Symptoms of anxiety and of obsessive-compulsive behavior were the commonest in the psychoneurotic picture. In all of these mental disorders I saw no indication of mechanisms different from those commonly seen in the United States.

My personal studies in China (1948) and in the Philippines (1956), and my brief observations in Indonesia (1956) tend to support the theory that functional mental disorders occur with much the same symptomatology in most cultures.[1,2] In southeast Asia organic mental diseases, such as dementia paralytica (general paresis) are more frequent than in the United States, but alcoholic psychoses and senile and arteriosclerotic psychoses are usually less frequent. It is not possible, at the present time, to say whether psychoneuroses, schizophrenia, and manic-depressive psychoses occur with less, equal, or greater frequency than in the United States. Only by carrying out surveys similar to those of Lin can a final and accurate estimate be given. My own impression is that the more carefully one studies this problem, the more likely one will be to find that the incidence of mental disease is much the same in all cultures.

In China, my impression was that the problems of mental disease and of emotional conflict are much the same as elsewhere, and that the personality of the Chinese is much more like that of the American, for example, than most people consider to be the case. The Chinese are more sensitive than are Americans on certain points and less sensitive on others. Dementia paralytica was apparently commoner in China. One saw the typical picture of euphoria, delusions of grandeur, and mental and physical deterioration. There seemed to be fewer cases of cerebral arteriosclerosis and senile psychosis than in the United States. Numerous writers have pointed out that arteriosclerosis does not occur in southern China, where the diet is principally rice, but does occur in the north among those who scorn the rice diet. Again, the factor of shorter life expectancy is important. Likewise, the Chinese very special cultural attitude of great veneration toward old age may cause less conflict and feelings of inferiority among older persons, and hence fewer emotional factors contribute to breakdown in old age. Alcoholism was not present, but opium addiction was extremely common.

I, likewise, found a great resemblance between mental disorders in the Philippines and those in the United States. It should be remembered that the Philippines were a part of the United States for 50 years; and the strong infiltration of American culture, in addition to the strong Spanish influence, has made a great impression on the upper-class Filipinos. They seem to have the same symptomatology and, in my opinion, probably a similar incidence, with a smaller number of all of the old-age diseases and fewer cases of alcoholism and drug addiction, though alcoholism was apparently increasing among the young soldiers stationed in outposts throughout the country.

Though my firsthand experience in Indonesia was limited to two weeks, I have discussed the problem extensively with Indonesian psychiatrists, some of whom have studied with me at the University of California School of Medicine. I have been unable to obtain exact statistics on the incidence of schizophrenia, but it is possibly less than in this country. Apparently, the diagnosis is made very rigidly, and a number of mild cases are not labeled as such,

although the condition would be called schizophrenia in this country. Alcoholism and drug addiction are rare, probably because most Indonesians are Moslems, whose religion forbids the use of alcohol and drugs. There is likewise the shorter life span, and probably a lower incidence of cerebral arteriosclerosis.

In conclusion, I would reiterate that we have no adequate answer to the question of the relation of culture to mental disease. There are now almost no uncontaminated cultures in which to study the problem. A careful survey of limited areas in various southeast Asiatic countries, following a plan similar to the survey carried out by Lin, would give us some fairly accurate answers about the incidence of mental disease, the incidence of various types of mental disease, and similarity or nonsimilarity of symptoms in specific types of mental disease in southeastern Asia, as compared with these occurrences in the United States.

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Vestibular Dysfunction in Childhood Schizophrenia

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Studies by various workers over the last several decades have established the existence of many physiological changes in adult schizophrenia.[1-4] It has not been demonstrated that these changes are primary, however, or that they are of prognostic value.

In this study we have investigated vestibular functioning in schizophrenic children. This area was chosen for several reasons.

First, hyporeactivity and paradoxical vestibular reactions were reported in adult schizophrenics by Angyal.[5] In commenting on that study, Paul Schilder seemed convinced that organic changes in vestibular functioning were present in some adult schizophrenics.[6]

Second, there is a good deal of presumptive evidence that childhood schizophrenics have some problem in the area of vestibular functioning. Loretta Bender[7] has demonstrated space, time, and motion preoccupation in some schizophrenic children. A more recent study[8] has confirmed this. The importance of spontaneous whirling and toe walking[8,9] has been noted. It is our impression that these phenomena represent clinical evidence of an already distorted body image (seen on Draw-A-Person Test), with vestibular pathway dysfunction of possible importance in the process. Yakovlev,[10-12] in his excellent speculative articles, states that the basic problem is manifest in the failure of the schizophrenic child to establish a differentiated space relationship to his own body, to other persons, to objects about him, and to outer space in general. Yakovlev feels that the development of consciousness, which makes possible the derivation of thought and language, depends, in turn, upon the abstraction of space as a dimension, of time as a duration, and of "body self" in relation to space outside. Space is the basic abstraction; time and self-image must be constantly referred to the experience of space as a dimension.

Third, since there continues to be doubt about the existence of schizophrenia occurring before adolescence,[13,14] it would be important to find whether there are common physiological denominators among adult schizophrenics and so-called childhood schizophrenics.

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A. Description of Experimental and Control Groups

Three childhood populations were included in this study, i.e., schizophrenic, children with "nonschizophrenic" behavior problems, and "normals." The childhood schizophrenics and the nonschizophrenic behavior problem children were studied at the Children's Unit of the Camarillo State Hospital, a residential treatment unit for severely disturbed children with a population of approximately 150. The children in these two groups had been in the Children's Unit at least six months, the schizophrenic children in general having a longer period of hospitalization. The average age of the 43 schizophrenic children was 9.0 years, with an age range of 6-15 years, and the average age of the 18 nonschizophrenic behavior problem children was 8.2 years, with an age range of 6-14 years. There were 27 boys and 16 girls among the schizophrenic children and 10 boys and 8 girls in the nonschizophrenic behavior

problem group. The "normal" group consisted of children at the University of California at Los Angeles Medical Center, 32 in number, with ages ranging from 1-13 years, with an average of 7.0 years. Of the latter, 18 were boys and 14 were girls.

1. *Normals.*—The normals had come to the University of California at Los Angeles Medical Center with a variety of somatic illnesses, e.g., fractured humerus, appendectomy, cystitis, etc. None of these children was seriously ill, and none had any complaints or symptoms referable to the central nervous system or to the ears. None had evidence of serious emotional difficulties. All had normal neurological and otological examinations.

2. *Nonschizophrenic Behavior Problem-Children.*—These 18 children generally had impulse disturbances on a psychogenic or organic basis. Children who had encephalitis, prematurity, etc., with subsequent hyperkineses, short attention span, and poor temper control consituted the organic grouping. (No gross evidence of physical handicap was present except in one 10-year-old boy, who had a mildly spastic gait, hyperactive deep tendon reflexes, and bilateral extensor plantar signs.)

3. *Childhood Schizophrenics.*—(*a*) Diagnosis: The diagnosis was established by observation in eight areas: appearance, speech, motility and posture, play patterns, interpersonal responses, thought content, psychometrics, and clinical history.

(1) Speech. This was judged grossly by its presence or absence. Further notations were made in voice inflection, tone, maturity, and rhythm.

(2) Physical appearance. Over-all impressions of maturity and height-and-weight ratio were formulated.

(3) Posture and motility. Judgment concerned enjoyment of antigravity play, toe walking, and spontaneous whirling. An attempt was also made to "whirl" children about their longitudinal axis.

(4) Play patterns. Notation was made concerning routinized play, enjoyment in toys expressing motility concepts, self-destructive play, and regressive play (pica).

(5) Interpersonal response. Gross judgment was made upon the child's interest in contacting his environment, i.e., avoidance *vs.* "clinging" behavior.

(6) Thought content. Introjects, paranoid trends, persevertion, and space-time-motion interests were noted.

(7) Psychometrics. Goodenough and Bender tests and Gestalt I.Q. measurements were attempted on all children. Body-image distortions on the Goodenough test and "vorticalization" [15] on the Bender Gestalt were especially evaluated.

(8) Clinical history. Case histories were carefully evaluated, special attention being given to age of onset of deviant behavior. The histories were also examined for any suggestion of vestibular dysfunction, i.e., dizziness, unsteadiness, poor balance, incoordination, unexplained nausea or vomiting, diplopia, nystagmus, and cochlear symptoms.

(*b*) General Findings in Schizophrenic Group: Most striking in the schizophrenic group was the immaturity in many areas of their appearance and functioning. Of the 43 children, 23 were currently nonverbal. Those who talked frequently demonstrated a nasal, high-pitched, wooden voice with frequent emphasis on the wrong syllable. Rhythm was often disturbed in their singsong-like presentation. Eleven of the children presented an autistic response in the first year of life, while twenty-nine had reached the second year and then regressed, losing previously attained habits (speech, bowel training, etc.). Only 3 of the 43 displayed minimal symptomatology in the first two years of life. They had less of the biological deviations noted in the other children and had greater disturbances in thought content, somewhat comparable to those in adult schizophrenics. One of these 3 had the only well-systematized paranoid delusional system noted in the 43 children.

Pica was extremely frequent, as were severe self-destructive trends, i.e., head

banging, eye blackening, abdomen pinching, etc. Of the 43 schizophrenic children, 7 had an intense anxiety in the presence of loud sounds, demanding that radios and phonographs be tuned in at low volume, in correspondence with Bergman and Escalona's previous observations.[16] Eight children spontaneously whirled,[8] and six persistently toe walked.[9] "Whirling" the children did not enable us to distinguish the different groups.[8] Psychometrics was of minimal value with these children, since only five were able to do the Bender Gestalt test and demonstrated "vorticalization."

(*c*) Neurological Examinations: Neurological examinations were done on the 43 children and were negative except in one instance. This was a child who had alternating esophoria and spontaneous nystagmus in all directions of gaze. Considering the vestibular function specifically, we found no nystagmus save in the aforementioned case, no past-pointing, no ataxia, no abnormal unsteadiness in standing with the eyes open or closed, and no positional vertigo.

(*d*) Electroencephalograms: Electroencephalograms were obtained on 23 of our 43 children. These recordings were a part of the routine work-up on the entry into the hospital. The 20 children without EEG's were too uncooperative for this procedure. Usually, there were both monopolar and bipolar runs. In addition to a waking record, 16 had recordings during drowsiness and sleep. Only 3 cooperated sufficiently to hyperventilate. As in many retrospective studies, we found these EEG's left us with unanswered questions, such as whether the child seemed drowsy, whether a movement accompanied a certain wave, etc. With these qualifications in mind, we can review the following data: The 23 children ranged in age from 5 to 13 years. Fourteen had normal EEG's for their age, while nine (39%) had abnormal recordings. Of the patients with abnormal EEG's, two had diffusely and moderately slow records for the patient's age. Seven had paroxysmal slowing of 4-6 cps. The bursts were bilateral, with no evidence of a focal onset. One of the children, a 10-year-old boy, in addition to several generalized bursts of 4-6 cps activity, had 1-3 cps, slow waves over the left occipital area. This child had had two generalized seizures, the last a year before the EEG's were taken.

B. Procedure

Vestibular stimulation was carried out by irrigating the external auditory canals with water and by spinning the subjects in a Bárány chair. Optokinetic nystagmus was also tested.

1. *Caloric-Induced Nystagmus.*—The caloric tests were done in the manner described by Fitzgerald and Hallpike,[17] in 1942. This paper, as well as a more recent article,[18] should be referred to for a detailed consideration of the theory and technique of this method. A brief description follows. The test is performed with the subject lying supine, and the head is elevated 30 degrees, thus bringing the horizontal (external) semicircular canals into an optimal position for caloric stimulation. Each ear is irrigated with water at 30 and 44 C, 7 degrees, respectively, below and above body temperature. The water is allowed to run freely into the auditory meatus for 40 seconds, 250-500 cc. of water usually being used. The volume of water is not important except that very small amounts should be avoided.[19] Accuracy of temperature, however, is important, since variations of less than 1 degree (C) may produce different results.[19] The nystagmus thus produced is measured for duration alone. The total number of beats of nystagmus could also be measured; but since this almost always varies directly with the duration, this portion of the test was not done. Frequency and amplitude of the nystagmus were not measured either, since these vary throughout the period of excitation and the results are not repeatable. We considered the "nystagmus duration" as starting at the beginning of irrigation; but since the nystagmus usually does not begin for 30-40

seconds, this measurement ignores the so-called latent period. This disregard is considered justifiable, since most of the latent period is due to the transmission of the thermal wave through the bone[20] and only a fraction of the time is due to the latent period of the receptor itself. The term "nystagmus duration" is used, although we realize that it lacks accuracy. During the procedure, the patient fixes his eyes straight ahead on the ceiling or, in the case of a less cooperative subject, on a presumably interesting object about 2-3 ft. directly above him. We found uncooperative patients could be induced to stare at the nose of one of the observers or at a coin for periods long enough to determine the presence or absence of nystagmus. Ocular fixation tends to make the end-point of the nystagmus come sooner and is easier to distinguish, and, for this latter reason, we did not use Bartel's glasses or other methods to eliminate fixation. It is important that the head of the subject not move during the period of observation.[21] As is the customary procedure, the nystagmus is recorded as being in the direction of the quick phase. Four to five minutes is allowed between each of these irrigations in a given subject. The caloric test was repeated four to six months later on the schizophrenic children, and a few days to three months later on the normal controls.

Hood and Pfaltz,[22] in rabbits, have found that the caloric responses were repeatable many times over and showed no decrease in value or other evidence of adaptation. In humans, as Fitzgerald and Hallpike[17] noted, "very small differences of response duration have been found measurable and can be reproduced on repetition." Our testing methods, or similar ones, have been used on large series of normal adults, with consistent results, both within and between series.[17,20,23-25] Specific patterns of response have been shown to occur in disorders of the end-organ,[26,27] the eighth nerve,[28] the brain stem,[28] and the cerebral hemisphere.[17,29]

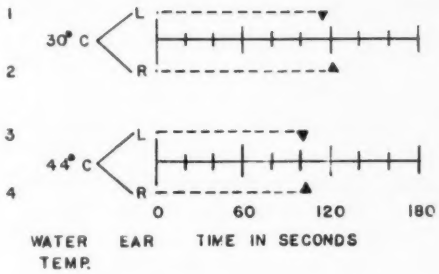

Fig. 1.—Normal caloric-induced nystagmus, recording the data in the manner used by Fitzgerald and Hallpike.[17]

It is convenient to record this four-part test in diagrammatic form, as seen in Figure 1. The solid horizontal lines represent time. The dotted lines represent the response durations, and may be numbered from above downward. Reactions *1* and *4* are nystagmus to the right; reactions *2* and *3* are nystagmus to the left. In the normal test in Figure 1, the responses to cold water are about equal, as are those to hot water; and, as is very common, the hot responses are a little less than the cold.

We analyzed the data in four ways. The following is taken almost verbatim from Hallpike, Harrison, and Slater.[23]

(*a*) Total Sensitivity: This is the sum of the reactions, i.e., $1+2+3+4$.

(*b*) Difference Between Cold and Hot Reactions: This is $(1+2)-(3+4)$. Usually this has a slightly positive value in normals, since the cold responses are slightly longer.

(*c*) Difference Between the Left and Right Responses: This is $(1+3)-(2+4)$. Normally the value is zero. If there is a defect in the left labyrinth of the left eighth nerve, "left canal paresis" may result. See the upper part of Figure 2. The lower part of Figure 2 shows an example of "right canal paresis."

(*d*) Directional Preponderance: This is the difference between Reactions *1* and *4*, which consist of nystagmus to the *right*, and reactions *2* and *3*, which consist of nystagmus to the *left*: $(1+4)-(2+3)$ (Fig. 3). Normally this value is zero. Di-

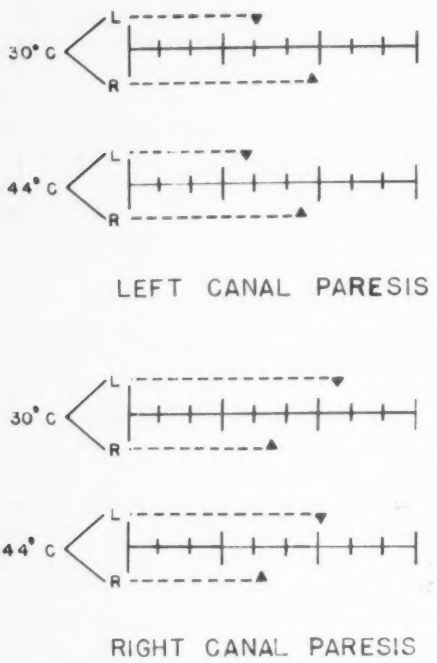

Fig. 2.—Caloric-induced nystagmus in left and right canal paresis.

rectional preponderance may occur as a result of lesions of the labyrinth, eighth nerve, brain stem, or cerebral hemisphere. Characteristically, disorders of the labyrinth and eighth nerve cause directional preponderance to the opposite side, while damage to the posterior temporal lobe causes directional preponderance to the ipsilateral side.

2. *Postrotational Nystagmus.*—The rotation tests were done in the following manner: The subject is seated in a hand-operated revolving chair, is rotated 10 times in 20 seconds, and is then brought to an abrupt halt. We are aware that some[30] think the method of Bárány is too severe a stimulus and that a milder quantitative test is desirable; but, because of its widely recognized clinical usefulness and its simplicity, we perferred to use it. During the spinning the head is inclined forward 30 degrees, thus placing the horizontal canals in a horizontal plane. This position allows maximal stimulus to these canals when deceleration occurs.

We were able to get even more disturbed children to cooperate in this test, with two exceptions. These two are not included in the results. When the spinning is stopped, the subject's head is firmly held and the nystagmus observed. The onset of the nystagmus is considered to begin at the end of rotation. Two to three minutes is allowed to elapse before the subject is spun in the opposite direction. The nystagmus duration may decrease if the test is repeated many times.[22] This adaptation is not understood, particularly since it does not occur with the caloric test. In any case, habituation does not occur when the rotation is done only two times on a subject, as in the present study.

3. *Optokinetic Nystagmus.*—Optokinetic nystagmus was demonstrated by using a cylinder, 13 cm. in diameter, which had five vertical black stripes 2 cm. wide spread equally around the circumference. In testing, the drum is placed about 1 ft. away from the subject's eyes, and the subject is told to watch the stripes go by. The drum is rotated in a horizontal plane, gradually increasing speed clockwise and counterclockwise until the eyes are no longer able to follow the stripes and the nystagmus breaks

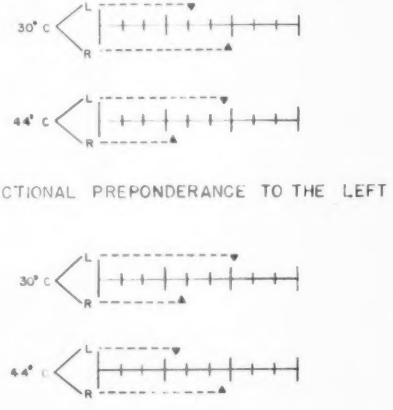

Fig. 3.—Caloric-induced nystagmus in left and right directional preponderance.

down. Vertical nystagmus is also observed by rotating the drum in a vertical plane. Visual stimulation produced in this way causes only nystagmus and no head turning, as when a large drum is used.

C. Results

Since there was no satisfactory statistical evaluation of these tests of vestibular and optokinetic response in children without ear or brain disease, we considered it essential to determine this before conclusions could be drawn regarding the results in abnormal children. As noted above, our controls consisted of two groups: normal children and behavior problem children.

1. *Normal Controls.*—Thirty-two normal children had the caloric test done once, and of these, twenty-two had the test repeated a few days to a few months later. Several points may be made.

(*a*) All the children had induced nystagmus. It varied in amplitude from coarse to so fine that careful observation was necessary to see it; this range of amplitude is also present in a normal group of adults. About two-thirds of the children reported dizziness or vertigo; but in none was it severe enough to alarm them, and there was none who vomited or was made nauseated by the test.

(*b*) The nystagmus duration in response to water of 30 C had a mean of 112 seconds, with a standard deviation of 16 seconds. The duration of response to water of 44 C was 101 seconds, with a standard duration of 15 seconds.

(*c*) The total sensitivities of the two trials have very similar means and standard deviations (see the third and fourth horizontal bands and numbers in Table 1, and the middle graph in Figure 4). The χ^2-values for a test of normality for the first and second trials are 2.48 and 2.44, respectively (degrees of freedom are 1 and 2), indicating that the data may be assumed to have come from a normal distribution. When the children are considered individually, 15 seconds was the maximum differ-

TABLE 1.—*Means ($\bar{X}$) and Standard Deviations (σ) of the Caloric Test as Performed on Three Groups of Children and on Two Series of Normal Adults*

	Total Sensitivity			Cold-Hot			Left-Right			Directional Preponderance		
	No.	$\bar{X}$	σ	No.	$\bar{X}$	σ	No.	$\bar{X}$	σ	No.	$\bar{X}$	σ
Normal adults (Hallpike et al.[11])	93	420	60	93	15.3	25.4	93	−1.9	15.3	93	−0.2	15.7
Normal adults (Thomsen[14])	48	425	50	48	19.4	22.4	50	−0.5	11.6	50	−3.7	17.3
Normal children First observations	32	421	49	31	19.2	12.6	31	0.5	9.6	31	0.5	7.5
Normal children Second observations	22	433	57	22	23.4	14.3	22	2.4	5.6	22	3.0	6.5
Behavior problem children	18	441	52	18	25.6	18.8	18	−1.7	8.6	18	1.9	8.9
Schizophrenic children First observations	42	243	107	33	28.8	40.5	33	−2.4	12.0	33	0	11.3
Schizophrenic children Second observations	41	241	106	36	32.9	45.2	36	3.5	11.4	36	0.8	13.4

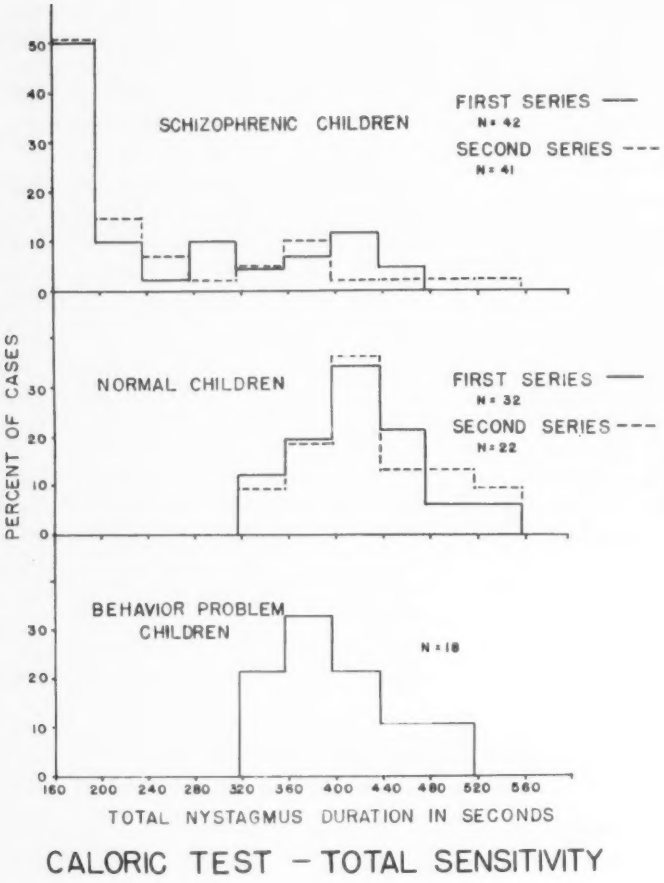

Fig. 4.—Comparison of the total nystagmus durations on caloric stimulation in schizophrenic children, normal children, and behavior problem children.

ence between the nystagmus durations on the first and second trials. That is, in any one child the nystagmus duration using water of 30 C in the left ear was repeatable a few days or a few months later.

(*d*) The difference between nystagmus durations with cold and hot water indicates that the nystagmus induced by cold water is more prolonged than that induced by the hot water, and that this difference has statistical significance. There was no appreciable difference between left and right responses, as is shown in the next vertical band in Table 1. The last vertical band to the right shows the figures on directional preponderance. We had no children that showed a directional preponderance of significant degree.

Postrotational nystagmus durations were obtained on 23 normal children. All had the nystagmus following clockwise and counterclockwise rotation, and the two values for each child were approximately equal. The total durations (the sum of the two values) ranged from 4 to 50 seconds. The mean was 30.2, and the standard deviation was 11.4 (center graph of Fig. 5). These findings are comparable to those in normal adults. Almost all the children tended to lean and to turn their heads in the direction of rotation when the spinning was stopped. In addition to this postural

deviation, they reported varying degrees of vertigo or dizziness.

Optokinetic nystagmus, using the technique described above, was obtainable and normal in 32 normal children.

2. *Behavior Problem Children.*—On caloric testing, the behavior problem control group, of 18 children, had means and standard deviations for total sensitivity, for difference between cold and hot stimulation, for difference between left and right turning, and for directional preponderance that were very similar to those of our normal children (fifth horizontal band in Table 1 and the lowest graph in Fig. 4).

Tests for postrotational nystagmus were done on 18 behavior disorder children. All had the nystagmus after rotation in each direction, and, as in the normal children, the two values were approximately equal. The total durations ranged from 10 to 50 seconds, with a mean of 24.2 seconds and a standard deviation of 11.0 seconds. The mean is somewhat less than that of the normal controls, but this is not a significant difference (Fig. 5). As with the normal children, most of these youngsters had postural deviation at the end of rotation, and complained of dizziness or vertigo.

Optokinetic nystagmus was tested for in 18 behavior disorder children and was present to both sides and in the vertical plane, and was not different from that seen in normal adults or in the normal control children.

3. *Childhood Schizophrenics.*—Before the results of the caloric tests can be discussed, it is necessary to clarify a point regarding nystagmus duration. A large number of schizophrenic children had no induced nystagmus at all, or, expressed numerically, 0 second. Other schizophrenic children had a very hypoactive response, with the *actual* nystagmus lasting only a few seconds, beginning about the end of the 40-second irrigation period. Thus, a child with 5 seconds' actual nystagmus would have a nystagmus duration of 45 seconds if one measured from the beginning of ear irrigation. In order to compare the results in those children with no induced nystagmus with the results in the others, we added 40 seconds to the 0 results.

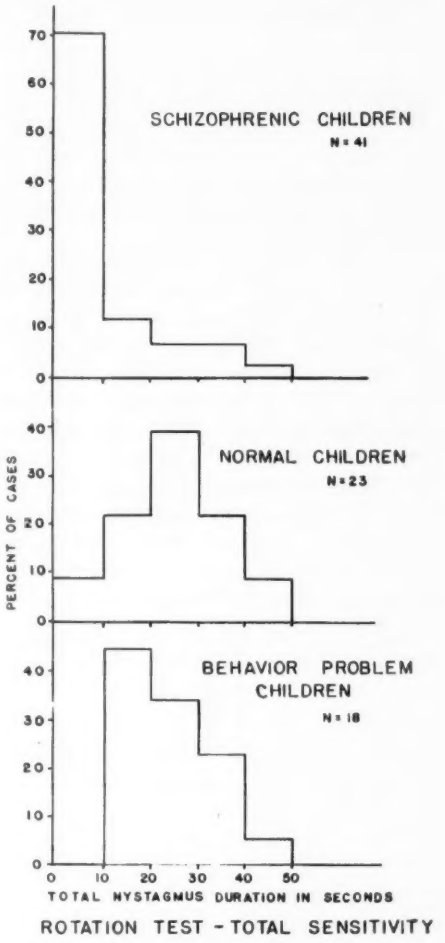

Fig. 5.—Comparison of the durations of postrotational nystagmus in schizophrenic children, normal children, and behavior problem children. Total nystagmus duration is the sum of the values on clockwise and counterclockwise rotation.

We examined 43 schizophrenic children for caloric-induced nystagmus on the first trial. One child could not be tested properly, giving a total of 42. On the second trial, one child had gone home, and one was too uncooperative to test, giving us a total of 41.

The following observations should be made:

(*a*) The nystagmus itself, when it occurred, looked no different from that seen in our control children and normal adults. Specifically, we noted no tendency to deviation of the eyes to one side or the other during the testing, and noted no unusual amplitude change.

(*b*) The nystagmus durations were very variable, ranging from no nystagmus at all to normal durations. In the first and second trials, 50% and 51.2% of patients, respectively, had no nystagmus with the eyes straight ahead following the usual caloric stimuli. Some of these children had nystagmus on looking to the side of the fast component, indicating that there was not complete absence of response. Of our schizophrenic children, 69.4% and 75.5% had total sensitivities of 320 seconds or less, while none of our normal controls and none of our behavior problem children had a total sensitivity of less than 320 seconds. Figure 4 shows this, and also the spread of the values of a minority of the schizophrenic children into the normal range. As may be seen in Table 1, the means of the total sensitivities are much less than for the controls. The χ^2-values for tests of normality for these two trials were 14.9 and 16.6 (degrees of freedom are 4 and 2, respectively), showing the deviation from normality to be statistically significant at the 0.005 level. Therefore, we can assume these data came from a non-Gaussian distribution.

(*c*) Another abnormality of the caloric testing in schizophrenic children was variability of the difference between the

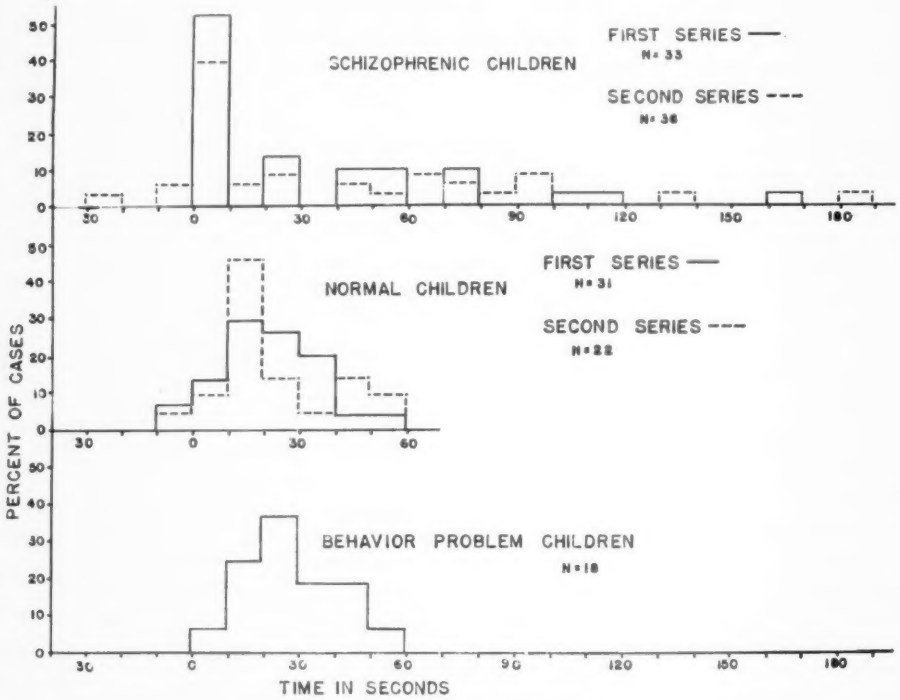

Fig. 6.—Spread of values on caloric-induced nystagmus when the sum of the responses to hot water is substracted from the sum of responses to the cold water. Note the greater spread found in childhood schizophrenia.

cold and the hot responses. As may be seen in Table 1, lower two horizontal bands, the standard deviations of the cold-hot difference is roughly three times as great as for our control children. This spread of values is also shown in Figure 6.

(*d*) Two children had definite directional preponderance at one testing period but not at the other. Considered as a group, we found no significant directional preponderance.

(*e*) We found no significant left-right difference.

(*f*) This population differed from our controls in another respect, namely, variability of response from one observation to another. Six of the schizophrenic children had an abnormal total sensitivity on one observation and a normal one on the other, using 320 seconds as the dividing line between normal and abnormal. Further, many of the other schizophrenic children had large changes in nystagmus duration, while remaining in hypoactive range (Fig. 7). So far, we have been unable to correlate this variation in response with any alteration in clinical state, psychiatric treatment, or medication.

(*g*) In those patients with no induced nystagmus, 21 in each of the two observation periods, we used a strong stimulus, irrigation of each ear with 50 cc. of ice water for 10 seconds. Most had no nystagmus even to this test. Four and three subjects in the first and second observation periods, respectively, had some induced nystagmus, but in only one was it of normal duration. The others had a hypoactive response in one or both ears.

(*h*) Most of our control children and most adults we have tested had mild dizziness or vertigo during the testing. In contrast, only a few of the schizophrenic children had such a reaction. Even those children who were subjected to the ice-water irrigation, a stimulus usually followed by very unpleasant symptoms, had no ill effects.

(*i*) There does seem to be a relation between the age of the children and the nystagmus duration. We had 31 preadolescent children, consisting of 24 boys up to but not including 12 years of age, and 7 girls up to but not including 11 years of age. On the two trials, this group had mean

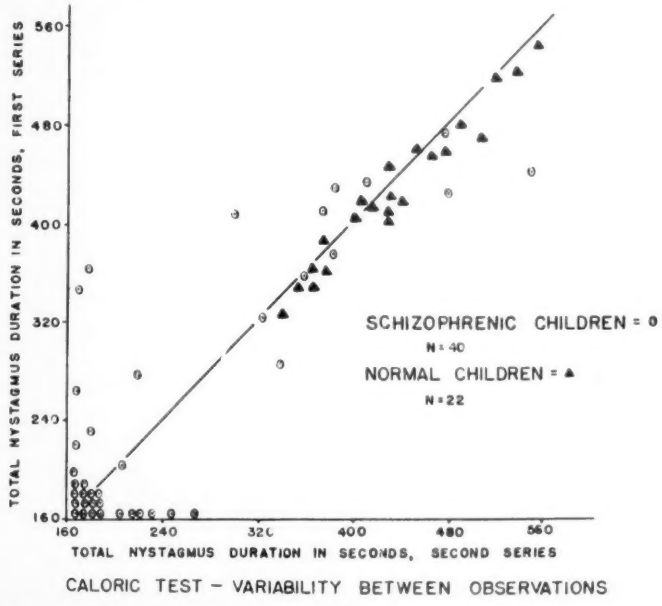

Fig. 7.—Variation between total nystagmus duration on two examinations in normal children and childhood schizophrenics. The loci of the normal children are close to the 45-degree angle, indicating very similar results. Many of those of the schizophrenic children are far from the 45-degree angle, indicating a large variation between the results of the two examinations.

total sensitivities of 222 and 219 seconds, definitely less than for the whole group. The standard deviations were 92 on each trial on younger schizophrenics. Although there is a tendency for the younger childhood schizophrenics to have a more hypoactive response than the group as a whole, it should be made clear that several of the 6- and 7-year-old children had normal responses.

We examined 43 schizophrenic children for postrotational nystagmus. Two were too uncooperative, leaving 41 subjects. Their total nystagmus duration (total of the clockwise and counterclockwise results) had a mean of 10.0 seconds and a standard deviation of 12.4 seconds. The mean is considerably less than either of the control groups. In 13 (31.8%) there was no nystagmus following rotation in either direction; 29 (70.7%) had a total nystagmus duration of 10 seconds or less. Two normal children had values of 10 seconds or less, and two behavior disorder children had values of just over 10 seconds. None of our controls had absence of nystagmus. There was more overlap between the postrotational nystagmus durations of these subjects and the controls than occurred with the caloric test. We found that a cut-off point of 10 seconds gave the sharpest division. (See Figure 5 for comparison with the two control groups.) There was no greater variation between the nystagmus durations following clockwise and counterclockwise rotation than that seen in the normal controls.

Unlike the controls, only a few of the schizophrenic children showed postural deviation and complained of vertigo at the end of the rotation, and these few children had normal nystagmus durations. It was after this study was partially completed that we noticed these differences in postural deviation and vertigo, and for this reason we cannot describe them numerically. Nonetheless, these observations are worth recording, since it suggests that the vestibular defect is not just in the vestibulo-ocular reflex arc but is a more generalized abnormality of vestibular function.

Optokinetic nystagmus was tested for in 43 schizophrenic children. Three children were uncooperative in that they would not look at the drum. The remaining 40 had nystagmus, which appeared the same as that seen in normal children and adults. We did not observe the head turning reported by Pollack and Krieger [35] in schizophrenic children; but this is to be expected, since this interesting and important phenomenon is brought out only with the use of a very large drum, where much of the subject's visual field is filled with the rotating stripes.

4. *Correlation with Clinical Diagnosis.*—On the basis of our series of behavior problem children and childhood schizophrenics, we have tried to assess the value of the caloric test and the spinning test in predicting whether a given child is schizophrenic or not. The total sensitivity on a caloric test (i.e., the sums of the nystagmus durations of the four ear irrigations on a given trial) was considered on the basis of our data to be abnormal if it was less than 320 seconds. The total nystagmus duration on the rotation test (i.e., the sum of the results following clockwise and counterclockwise rotation) was judged abnormal if it was 10 seconds or less. When the caloric test was done once, we found that 22%-26% of the entire group of schizophrenic children had values above 320 and would have been misclassified. We had no behavior problem children who were misclassified, but in a large series with a similar Gaussian distribution one might expect about 2% to fall below 320 seconds, and thus be misclassified. These figures and the following values are shown in Table 2. Doing the caloric test twice about halves the percentage of childhood schizophrenics who would be misclassified. We did not do this test a third time, but it is probable that a further slight reduction in misclassification of schizophrenics would result.

TABLE 2.—*Percentages of False Positives and False Negatives for Various Tests*

Test	False Negatives: % of All Schizophrenic Children Misclassified	False Negatives: % of Preadolescent Schizophrenics Misclassified *	False Positives: % of Behavior Problem Children Misclassified
Using caloric test once and calling child schizophrenic if total nystagmus duration was below 320 sec.	22%-26%	10%-16%	2% †
Using caloric test twice and calling child schizophrenic if total nystagmus duration was below 320 sec. on either test	17%	7%	3% ‡
Using spinning test once and calling child schizophrenic if total nystagmus duration was below 10 sec.	30%	20%	10% §
Using caloric test once and spinning test once and calling child schizophrenic if total nystagmus duration was below cut-off value on either test	13%-15%	4%-7%	11% ‖
Using caloric test twice and spinning test once and calling child schizophrenic if total nystagmus duration was below cut-off value on any test	13%	3%	12% ¶

* A preadolescent child is here defined as a girl 10 years of age or younger or a boy 11 years of age or younger.

† Our actual finding gave 0% behavior problem children misclassified. Since our sample of behavior problem children is small, however, and is apparently similar in statistical characteristics to our large sample, which includes normal children, we have used the mean and standard deviation of this composite sample to obtain the more conservative figure of 2%.

‡ The expected frequency with which one or the other or both tests will be in error is (% error 1st test)+(% error 2d test)−(% error 1st and 2d test together). Estimating these terms from Figure 7, we obtained a value of about 3%.

§ Our actual findings gave 0% behavior problem children with total nystagmus durations of less than 10 seconds. However, two such children fell so close to this critical value as to make their classification unreliable. We have therefore raised the figure to the more conservative value of 10%. This is consistent with the 10% of normal children we observed to fall below the critical value.

‖ The composite error should be something less than the sum of the 2% figure of footnote † and the 10% figure of footnote §. From a suitably drawn figure, we estimated the error as about 11%.

¶ A rough estimate similar to that in Footnote ‖.

The rotation test misclassified about 30% of the schizophrenic children. About 10% of the controls were misclassified. On the basis of our data, this indicated that the caloric test is more sensitive and gives fewer false-positive results than the rotation test.

Performing the caloric test and spinning test once each, and classifying as schizophrenic a child whose score fell below the cut-off point on either test gave 13%-15% misclassification of the schizophrenic child. The error is somewhat less than that obtained when the caloric test is done twice. The figures on the subgroup of preadolescent schizophrenics (middle vertical band of figures, Table 2) also suggest that there is little greater sensitivity if each test is done once than if the caloric test is done twice.

If the caloric test is done twice and the spinning test once, there is not an appreciable reduction in the percentage of all the childhood schizophrenics who are misclassified, as compared with the results on doing the caloric test twice. On the other hand, the preadolescent schizophrenics do show slightly less misclassification if these three tests were done.

The preadolescent schizophrenics had a lower percentage of misclassifications than the whole group, whatever test or combination of tests was done. This, again, indicated that abnormal vestibular reactivity is commoner in the younger childhood schizophrenics.

We would summarize the possible usefulness of these vestibular tests in diagnosing childhood schizophrenia as follows, keeping in mind that these predictions are based on a single study by one group of observers, and that the above figures for percentages misclassified were obtained from the same data as were used to arrive at the cut-off values.

(*a*) If a child has no response to caloric stimulation performed in the manner used in this work, or if the total nystagmus response is definitely hypoactive, and if there is no ear or brain-stem disease to account for this deficit, it is very likely that the child is schizophrenic. According

to our estimates, there is a theoretical 2% of nonschizophrenic children who will be misclassified. If the total duration on the caloric test is normal, this test is not helpful, since the child may or may not be schizophrenic. About one-fourth of our schizophrenic children had a normal test.

(*b*) If the first caloric test is normal, and the caloric test is repeated at a later date and is found to be abnormal, it is very likely the child is schizophrenic. If the second test is normal, the child may or may not be schizophrenic. About 17% of our schizophrenic children remained misclassified after the second test.

(c) If a child has no response at all to the rotation test, it is very likely he is schizophrenic if the possibilities of ear and brain-stem disease are ruled out. We had no normal or behavior problem children who had an absence of postrotational nystagmus. If the child has a hypoactive response with a total nystagmus duration of 10 seconds or less, it is quite likely that he is schizophrenic.

(*d*) If a child had a normal caloric test and later has an abnormal spinning test, or vice versa, it is very likely the child is schizophrenic. Of our schizophrenics, 13%-15% were misclassified. As in (*c*), above, the percentage of false-positive responses is greater than when the caloric test is done on two occasions.

D. Comment

1. *Neurophysiological.*—How can the abnormal vestibular reactivity in childhood schizophrenia be explained neurophysiologically? First of all, it seems unlikely that there is a deficit in the labyrinth, vestibular nuclei, or major ascending pathways. The following points support this assumption.

(*a*) The bilateral hypoactivity to caloric testing and rotation is unlike that seen in the usual diseases affecting the vestibular system. Afflictions of the labyrinth, vestibular nerve, or vestibular nuclei, which could produce this reaction, are also accompanied by well-defined signs and symptoms which are not present in childhood schizophrenia. The objective findings include ataxia, frequent falls, past-pointing, forced posturing, spontaneous nystagmus, nausea, and vomiting. In humans with an acute unilateral lesion there is often a tendency to turn or, rarely, to rotate, but this is unlike the chronic intermittent whirling seen in some childhood schizophrenics. The major subjective findings of vertigo and the visual illusions of tipped or twisted walls and floors are not complained of by those childhood schizophrenics able to express themselves. The above signs and symptoms are seen to some degree even in cases of chronic fixed lesions, such as destruction of vestibular nuclei by streptomycin. Lesions of the upper brain stem, which interfere with the vestibulo-ocular reflex arc, produce other signs: spontaneous nystagmus, disturbances of conjugate eye movement, tonic eye deviations, disturbances of either the quick or the slow phase of induced nystagmus, ocular palsies, and other cranial-nerve or long-tract signs. Bilateral temporal lobe lesions damaging the main cortical termination of vestibular pathways do not cause a marked depression of caloric and rotatory induced nystagmus.

(*b*) The variability of vestibular response to caloric testing and rotation from one observation period to the next also differs from the changes seen in the usual lesions of the vestibular paths. Variations may occur in many acute processes and in a few chronic conditions, such as Ménière's disease (labyrinthine hydrops) and labyrinthine fistula; but here, too, other signs and symptoms accompany the changes in the induced nystagmus.

(*c*) The apparent decrease in severity of vestibular hypoactivity as the schizophrenic children get older also suggests there is no fixed disturbance of vestibular pathways.

(*d*) Finally, in schizophrenia, no significant pathological abnormalities have been found in those parts of the brain traversed by the vestibular pathways.

Summary: It appears unlikely that a lesion of the major vestibular pathways could cause the type of deficit found in childhood schizophrenia.

On the other hand, it seems to us that a reasonable argument can be made that the abnormal vestibular response is due to some inhibitory influence, or lack of facilitatory influence from elsewhere. A number of possible routes and way-stations may exist; we should like to discuss several.

At the brain-stem level, two sites of action appear reasonable. Széntágothai and Scháb [36] have shown that stimulation of several areas of the upper reticular formation, particularly the region of the nucleus of Darkshewitsch, in the periaqueductal gray matter just rostral to the oculomotor nucleus, causes inhibition of eye movements. It is possible that this area is the final way-station leading to the inhibition of induced nystagmus in childhood schizophrenia. Inhibition of vestibular activity may be mediated through connections terminating more caudally than the midbrain, however. It is known that responses in the cochlear nucleus to click stimuli may be markedly attenuated by "attention." [37] It is possible that similar blocking of descending influences may occur at the vestibular nucleus itself.

Reaching the brain-stem reticular formation, particularly its rostral end, are fibers from a variety of sites, including much of the frontal cortex and cingulate gyrus,[38] the rhinencephalon,[39] the thalamic reticular formation, and the hypothalamus. It is noteworthy that corticifugal impulses, particularly those from the hippocampal gyrus, are able to facilitate or block excitation within the brain stem.[40] It may be that one of these paths carries abnormal influences in schizophrenia.

We should like to consider briefly the next higher step, i.e., possible activity which could pass down one or another of these paths. In schizophrenia abnormal spike discharges and sharp waves have been recorded from the thalamus,[41] from the septal and hippocampal regions,[41] from the hypothalamus, and from the frontal, temporal, and partial lobes.[43,44] It is possible that the source or sources of these impulses may also discharge caudally. In this regard, it should be noted that the only widely accepted pathological change in schizophrenia is the dwarf-cell abnormality in the thalamus, particularly the nucleus medialis dorsalis, as described by the Vogts.[45]

The cause of the spontaneous whirling seen in some childhood schizophrenics continues to be puzzling. Is it related to the vestibular abnormality in any way? It is certainly unlike the forced circling seen in animals and, rarely, in humans with acute unilateral lesions of the vestibular apparatus in that the latter has other signs and symptoms of vestibular dysfunction and occurs only with acute unilateral processes. On the other hand, it does resemble the circling phenomena seen in animals following lesions in other parts of the nervous system. Denny-Brown and Chambers [46] have shown in monkeys with bilateral removal of Area 17 and the lateral parietal lobe that continual whirling could be induced by initial optokinetic drum rotation or by starting to rotate the animal. The whirling of the animal was perpetuated by its own movements, and was reversible by a visual stimulus moving faster in the same direction. This whirling was abolished by damage to the caudal border of Area 18. They considered that this phenomenon was due to release of optokinetic orientation to the visual field, and that this aspect of visual orientation depended on the integrity of Area 18 and its projection to a discrete area in the thalamus. Pollack and Krieger [35] found that some schizophrenic children show a tendency to turn their heads and bodies to an extreme degree in response to optokinetic stimulation. Unfortunately, these children were not tested in a position which would permit whirling. It is clear that schizophrenic children do not have the usual clinical manifestations of parietal lobe dysfunction. But it is possible that their

tendency to spontaneous whirling and unusual responsiveness to optokinetic stimulus is due to a release at a thalamic level.

White and Himwich,[47] in reviewing their own work and that of others, indicate that circling can be produced by stimulation and ablation of parts of the basal ganglia and brain stem. Contraversive circling is produced by stimulation electrically or by injecting isoflurophate U.S.P. (DFP) directly into the head of the caudate nuclei or vestibular nuclei. Ipsiversive circling is produced by stimulation of the ventromedian thalamus or midbrain tegmentum. Ablation of each of these areas causes circling in the opposite direction. Do whatever forces which are active in schizophrenia cause an imbalance in the caudate nuclei or another of these paired structures, and so produce a tendency to whirl?

Toe walking is another postural disturbance in childhood schizophrenia which may be related to vestibular dysfunction.[9] Gernandt, Katsuki, and Livingston[48] have shown an interesting relation between vestibular stimulation and manipulation of the toes of the hindleg of the cat. Stimulation of the vestibular nerve tends to facilitate both flexor and extensor reflex patterns. If the tarsal-metatarsal joints are displaced slightly or are dorsiflexed, there is a profound facilitation of both the flexors and the extensors of the foot. They point out that standing, stepping, and springing should displace the joints of the foot and thus tend to stabilize the limb by causing a positive supporting reaction. Is it possible that in childhood schizophrenia influences from the diencephalon permit augmentation of facilitatory descending vestibular activity and potentiate the tendency to push against the ground with the toes? Or is it possible that influences acting via the reticulospinal pathways facilitate the positive supporting reaction at the level of the anterior horn cells? Although these questions cannot be answered now, we would suggest that in some way the disturbance in vestibular function in childhood schizophrenia is related to the toe walking.

2. Clinical.—Our normal and behavior problem children had caloric responses which were very similar in the two groups, and, as may be seen in Table 1, to the two large adult series of Hallpike, Harrison, and Slater[23] and of Thomsen.[24] The behavior problem children thus differed from the adult neurotics of Hallpike et al.[23] in that the latter had longer total sensitivities and a wider spread of values than the normals. The similarity of vestibular reaction of the two groups of children is also shown by the almost identical reactions to rotation. All in all, there is reason to consider normal children, behavior problem children, and normal adults as one group with regard to vestibular sensitivity.

The children with schizophrenia had caloric responses which were quite different from the control children and normal adults. This difference was most striking with regard to the hypoactivity and the variation in response from one examination to another. Hypoactivity has been noted in adults with schizophrenia,[5,31-34] but it appears to be much more frequent in children, if we may generalize from our group. The variability of response was also found in adults by Fitzgerald and Stengel.[31] These abnormalities, not found in any other disease state, are strong evidence that some types of adult and childhood schizophrenia are closely related or form an entity. The findings of Bender,[49] indicating that many childhood schizophrenics will become adult schizophrenics, further strengthens this connection.

There is presumptive evidence that vestibular dysfunction may be related to some of the signs of childhood schizophrenia, such as toe walking, spontaneous whirling, and "vorticalization" on the Bender Gestalt test. It can be hypothesized that such children may have difficulty in spatial orientation, but wo do not know whether toe walking and spontaneous whirling are the child's attempt at reorientation or whether they are due to vestibular dysfunction itself. At the present time we are engaged in

further studies attempting to clarify these hypotheses.

If these symptoms (toe walking and spontaneous whirling) are attempts at reorientation, it is possible that therapy directed toward spatial reorientation would be of value, in addition to conventional play therapy, drug therapies, and parent counseling. Some psychiatrists have been doing this very thing as a result of their clinical observation, but little has been written as to the significance of their particular methods.

Preliminary analysis of the data demonstrated that children classified as "autistic" have the same vestibular response as those who appear to regress at a later age (12 months and beyond). (Whether the children actually "regressed" or whether they had unrecognized symptoms in their first year of life is at this time a debatable point.) There appears to be no obvious correlation between the type of childhood schizophrenia or state of withdrawal and the presence or absence of nystagmus. This differs from Angyal and Blackman's [5] findings in adult schizophrenics of a positive correlation between catatonic episodes and vestibular hypoactivity.

Diagnostically, our data suggest that a child with no organic damage to the vestibular apparatus or vestibular pathways, and who has absence or diminution of vestibular function, has a 98% chance of being schizophrenic. The presence of normal vestibular functioning cannot rule out schizophrenia. At the present time we are unable to say whether vestibular dysfunction in a schizophrenic child has prognostic value.

Summary

Tests of vestibular and optokinetic function were performed on 43 childhood schizophrenics, 18 behavior problem children, and 32 normal children. The normal and behavior problem children had reactions similar to those of normal adults. The majority of childhood schizophrenics had markedly depressed or absent vestibular responses to caloric and rotational tests. The degree of hypoactivity was more marked in the younger childhood schizophrenics. The responses of some schizophrenic children varied from one observation period to the next, unlike the responses of our controls and of normal adults. There were fewer and less severe manifestations of vertigo than were seen in our controls.

This study suggests the possible existence of a neurophysiological continuum between a type of childhood schizophrenia and a type of adult schizophrenia.

It is difficult to say whether these centers (medulla and midbrain) as such, do not function in the right way and whether they are more excitable in schizophrenics than they are in normals. It may be that many influences which go to these centers are diminished or increased. I, personally, am inclined to believe we have to reckon with changes in primary postural apparatus of the brain as well as secondary.[60]—PAUL SCHILDER.

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Schizophrenic Symptoms and Family Interaction

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A good deal of criticism has been leveled at speculations about the relationship between a schizophrenic's symptoms and his life experience, past or present, particularly when these speculations are made on the basis of intensive psychotherapy of a single patient. Before the intensive study of the families of schizophrenic patients was begun, relatively few years ago, only the patient's statements and the hunches of the therapist were available as data, because it was not considered proper for the therapist to see the family and the hospital was usually happier when they did not come around.

However, we now have available three sorts of data about the family that can be directly studied in relation to the patient's current symptomatic behavior, and which may or may not eventually be related to the etiology of schizophrenia.

1. Psychological, sociological, and anthropological information about families. The standard psychological tests, the Q-sort, child-rearing practice questionnaires, and the study of roles in families of different socioeconomic levels are examples of this category.

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2. The collection and collation of data obtained by individual interview with family members. This approach is best exemplified by the studies of Lidz and Fleck.

3. The joint observation, and often treatment, of the family together with the patient. Papers by Bowen, Wynne, Bateson, and Jackson have reported on this type of data collection.

We should like to describe a few specific examples of how connections between a patient's symptoms and his family's interaction can be seen during family interviews, and then to outline some points about the general nature of these relationships as they have appeared to us in a number of instances.

FAMILY A.—The patient is a 32-year-old divorced woman with an 18-month-old daughter. She was first hospitalized for schizophrenia, catatonic type, when she was 19 and has had five years of on-and-off residence in mental hospitals. Family therapy was instituted because she had left her husband after five months of hospitalization to live with her parents. Since it was expected that her child, who was in a foster home in a distant city, would eventually join them, individual therapy did not seem sufficient to cope with the complexities of their situation.

The symptoms most complained about by the parents was the patient's indecision. Every decision, however simple, was a problem. Deciding which dress to wear could occupy an entire morning. How could such irritating behavior be adaptive? In the family sessions it was noted that both parents sounded "too sure" of themselves, especially when responding to evidence of indecisiveness on the patient's part. When the therapist questioned their bland oversimplifications, they revealed great indecisiveness, and their past histories reeked of it. As an example, the family was asked to discuss how they would cooperate in rearing the baby when she arrived, while the therapist watched from a one-way glass. Neither parent spoke, but both looked at the patient. Finally, she expressed concern about how well all of them could handle a baby. She reminded them that she had never

cared for a child and that it had been some years since her parents had. When was the child to be fed, bathed—evening or morning, etc.? As the mother leaped in to reassure her, she went too far. She stated, among other things, that "daddy will be glad to help out." At this a shadow passed over the father's face, but he kept quiet and later joined his wife in her happy picturing. The therapist returned to the room and aided father in admitting he had had nothing to do with the care of his own children and that the thought of starting now was less than appealing.

If the patient's symptom of indecision was an adaptation, then the loss of it should cause changes in the family. To support this hypothesis, the mother was describing her care of the patient, her nursing her son through a "nervous breakdown," and her mothering her husband through recurrent depressions and retreats from his profession. The therapist asked the mother whether she was ever allowed to break down, or whether she always had to be the strong one. She responded like a person choking on a fishbone; when finally able to speak, she dismissed the question by stating that it was over now and just a silly business in the past, but she never did specify what it was that was over. The patient, intensely alert during all this, stated she wanted to fly to her daughter and fetch her home. That afternoon she returned to the therapist's office to pick up a letter from him assuring the foster home that he felt she could bring the child home. The mother was trailing her daughter in the manner of a sheep dog, reflecting her helplessness. When she appealed to the therapist, "What are we going to do about the ticket? I don't have enough money on me," *the patient* reassured her that she had already called the travel service and they would accept a check. This decisiveness on the patient's part was immediately followed by three events unusual in this family: The father flirted at a party, had a violent argument with his wife, and that evening was impotent reportedly for the first time in their marriage.

Another reaction to a decision by the patient occurred when they were expecting a visitor labeled as "the patient's friend," although the mother had invited her. The patient expressed fears, which the parents pooh-poohed, that this visitor might report back to the husband her behavior with the child. This fear seemed sensible, since the patient had met this person through her husband originally, and there was a natural fear he might try to get the child back. The therapist suggested that this woman's visits be limited and that a room be obtained for her in a nearby motel so that the patient could see her only during her better moments. The parents fought this bitterly, calling it an inhospitable act. The therapist finally turned to the patient and asked what she perferred to do, since the mother had said they would do whatever she wanted. She said in a very quiet voice: "I think it would be simpler," then, looking at her parents, "but some people would think it was inhospitable." Immediately the father jumped in with, "You see, she agrees with me. She says it would be inhospitable," and the mother was vigorously nodding. The therapist protested that he had heard her say, "It would be simpler," and that she had looked at her parents and tried to modify it for their sake. Finally, he played back the tape, and it was necessary to run through the recording three times before the parents heard her actual statement. The father kept hearing only the second half, and the mother was so amazed by the sound of her own voice, "I sound like a witch; I sound like a man," that it took almost bodily force to get them to hear the patient say she had come to a decision.

There are many instances in this family in which the patient's indecision arises at those moments when the parents are oversimplifying complicated matters. She protects her parents by not arguing with them and not pointing out their logical fallacies, and yet her very behavior confuses them at the same time. Only when she is acting psychotic and speaking "schizophrenese" does she accuse them in more direct fashion, and then she overdoes it, so that the parents say she is out of her mind.

FAMILY B.—The patient is an unmarried 25-year-old man, who has been hospitalized for schizophrenia for the past five years, except for four months at home on a trial visit in the midst of this period, during which he became worse and the family very upset. When family therapy was initiated after the parents expressed concern that the patient was getting nowhere with other treatment, which had included individual psychotherapy, the patient's most prominent symptom was withdrawal, expressed by silence or by a stock answer of "Uh—I don't know," when asked a question. His parents repeatedly expressed several kinds of concern about this withdrawn behavior: They would like him to participate more in family activities during his week-end visits home; they would like him to cooperate more with the family, and they felt he had things on his mind but they could not tell what, and he wouldn't say. All this was phrased as showing their love and concern rather than as criticism of the patient.

In the course of the family sessions, however, although there was a good deal of reemphasis on this picture of noncommittal withdrawal by the patient and parental concern over it, it also became

noticeable that (1) the parents, as well as the patient, avoided personal communication, although the patient's uncommunicativeness rather screened theirs from view, and that (2) when the patient did speak up, the parents were disturbed and evasive.

In the first place, both parents actually said about as little about their own feelings and relationships in the family as the patient. The father talked at length, but mainly in a rambling, repetitive, and superficial way, although he recurrently demanded that the therapist get down to cases more. Often too, he appeared to be the spokesman, or "front man," for his wife. She usually talked rather little except for remarks at the level of polite social conversation. Later on, when some family conflicts were more out in the open, she made this attitude explicit, saying that she didn't like to discuss personal matters and thought it only disrupted family "harmony," which she tried hard to maintain. This context seems pertinent to the patient's silence, and to his occasional statements about it, such as the following episode: The patient had mentioned expecting his ward chief to renege on a promised pass. The therapist asked whether his parents had gone back on promises to him. At this the patient began to speak up more than usual, but said the therapist must be "crazy" to bring up such matters.

Another example showed not simply keeping away from the personal and interpersonal but positive cooperation in doing so. The parents frequently referred to subjects like heredity, shock treatment, surgery, and tranquilizers when mental illness was referred to, while the patient often closed off discussion approaching his personal feelings by saying, in a rather grand and general way, that "mental illness is all a matter of physics and chemistry." The significance of this was especially evident in one family session, in which the mother anxiously insisted that the patient did have thoughts and could speak up, until he burst out: "You keep pounding on me about mental illness." But then he subsided and shifted back to "mental illness is all a matter of physics." This tape-recorded interchange was replayed to them at the next session, and immediately thereafter the mother commented: "I agree with him; it's all a matter of physics." Asked just how she meant this, she became very vague.

These examples suggest that the patient's symptom of withdrawal and impersonality is largely shared by the parents, but that they ordinarily have better conventional covers for this. Therefore the patient's behavior can function as a cover for their fundamentally similar difficulties. This notion receives support from observations that the patient's silence and withdrawal occurred, or was intensified, in situations where the parents avoided their own problem by turning the focus, whether of concern, anger, or whatever, on their son. This focus was so routine at the start that a particular clear example is easier to find later on. After considerable therapy, in one session, the parents were expressing great concern that the patient was troubled by something, as they could see by his behavior on visits home, but that he wouldn't say what. The therapist suggested they discuss their own thoughts and feelings about this, but they insistently returned the focus to the patient, and he finally walked out of the session, angrily. Further discussion with the parents finally revealed that the son's behavior at home had changed from a mixture of dreamy withdrawal, and some superficial polite remarks, to a much more clearly angry avoidance, and that while the mother was very bothered by this, the father disagreed with her privately, seeing it as improvement, even if not pleasant. But they would not admit their disagreement before the son, speaking only of concern for him instead.

Finally, the valuation and functioning of the patient's silence and withdrawal in the family system is especially emphasized by the nature of parental responses when, exceptionally, he did speak up, or, after long restraint, burst out. Considerable light is thrown on this by the mother's remark, after insisting how much they wanted their son to talk to them, that of course he should talk nicely; she could tolerate anything from him but "rudeness." But an example of ostensibly quite "crazy" behavior points things up most clearly. At a certain period, the therapist had been pointing out that father-son conflict was often emphasized but mother-son relations were little discussed. The mother was not happy about this interpretation, and the patient had shown some suspicion and withdrawal. The parents were asked what might be occurring, and the father began to lecture his son on how he didn't appreciate all that was being done to help him. The patient got angry, at which the mother interceded in an obscuring way, claiming that the son was just protecting himself and currently was irritable if anyone got personal about anything. The therapist suggested that perhaps the patient also protected his mother. The patient angrily denied this, saying she had something coming to her. She gave out a shocked and angry "What?" and the father hurried to suggest that the patient was angry at them *both*. The mother then recovered her more usual style and claimed she didn't get what her son meant. At this point he went into a lengthy, angry harangue about death and destruction being visited on the area and how the family wouldn't escape. This was couched in terms of Russia, atom bombs, revolution in Iraq, and so on, yet the feeling involved and the immediate family reference seemed rather clear. The parental responses, however, avoided all this. The father responded quite literally: "You're talking

about the present world situation?" The mother responded literally to some details but mainly claimed puzzlement: "It's too far-fetched; I don't understand." So the patient's speaking up led nowhere.

Comment

We can summarize our views, as illustrated concretely in these examples, in this way: In the past, the customary view of the symptomatic behavior of schizophrenics was that it was crazy or senseless. This implied one or both of two main characteristics *separating* it from "normal" behavior: that it was *unlike* the behavior of other people, and that it was pointless, purposeless, *unrelated* to the patient's life situation. It rather seems to us that schizophrenic behavior, when viewed in its family context, (1) resembles the behavior of other family members, though it may be exaggerated almost to a caricature (or possibly be an inverted form at times; this is not yet certain), and (2) appears to subserve important functions within the family. These may be seen either by directly considering how this behavior helps preserve the status quo or, a reverse approach, how change in the patient's behavior is disruptive and disturbing, at least in the short run.

It seems probable that these relationships have been hard to see in the past because there is a pervasive duality about schizophrenic behavior and its functioning in the family, which we may point out in closing.

1. The patient's symptom characteristics have a dual aspect.

(*a*) They obscure, interrupt, and *focus on him* the interaction occurring at that moment. An example would be the patient who threatened the therapist physically, calling him a spy and an FBI agent at that moment when the therapist was following up a lead that the mother may have had a psychotic episode when illegitimately pregnant with the patient.

(*b*) The patient's symptom communicates information which, if understood, can lead to new information about the family or about his relationship with one of the members or with the therapist. Thus, in the previous example, the word "spy" carries an opprobrious connotation, but "FBI agent" does not have this ring. Later it was discovered that, despite the patient's anxious concern for her mother, she wanted her mother's emotional illness to be revealed.

2. The fact that the patient's communication has a dual aspect is supported by the response of the parents, and sometimes of the siblings. The "crazy" aspect is supported by (*a*) laughter, ridicule, amusement, and the "leading-on" type of questions, or by (*b*) the family's refusal to take it personally, so that the possible meaning is ignored through silence or passing over it or by attempts to get the patient not to say such a ridiculous thing.

3. The message is thus lost, but if the patient is able to state the message more explicitly, several events may occur.

(*a*) If this is a single attempt on the patient's part, he may receive the sort of agreement that is like running into a brick wall; or he may be organized against until he backs down or withdraws, sometimes into silence, sometimes physically, and sometimes into more profound psychosis.

(*b*) If the more explicit statement represents a real change in the patient which he can maintain over a significant time period, we then find new coalitions and fresh disturbances in the family.

It is this sort of duality that simultaneously obscures and reveals the nature of schizophrenia and creates the possibilities and difficulties of its psychotherapeutic treatment.

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Alterations of Ego Functions in Chronic Schizophrenia

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Introduction

An investigative program, begun in 1952 at Manteno State Hospital in collaboration with representatives of ancillary disciplines, was designed to explore possibilities for resolving two neglected clinical problems in chronic schizophrenia. First, is it possible to differentiate more precisely among the various types of chronic schizophrenic states? Second, can the terminal phases of schizophrenia be more clearly aligned with their earlier clinical forms? Both questions are of considerable theoretical importance and contain potentialities for practical application to our daily clinical work and to the management of a large portion of our state hospital population.

Diethelm [1] has summarized the slighted attitude toward these questions.

> There are few contributions in literature discussing the course which schizophrenic illnesses may take. Eugen Bleuler gives an excellent summarized statement, while Kraepelin, and later Kolle, discuss the incidence of various types of schizophrenic reactions in different age groups. Some light has also been thrown on the course of these illnesses by studies of prognosis and outcome . . . especially . . . by Langfeldt.

Ey's [2] account of "344 cases observed personally over a period of 12 years, and including at least 5 years of catamnestic recession" is also indicative of continued sporadic interest in these problems. The implications for clinical research and practice of the question whether it is possible to distinguish more precisely among the various forms of chronic schizophrenic reactions were initially posed by Kraepelin.

> . . . It is in high degree arbitrary how many grades of dementia may be distinguished, and how the individual cases may be distributed among them, especially as their conditions may still often experience . . . all kinds of transformations. . . . In this uncertainty about delimitations, the statements of different observers cannot be compared at all, not even the diagnoses of the same investigator at different periods of time.[3]

The second question also may be paraphrased from Kraepelin. Would a clearer delimitation of the clinical forms of chronic schizophrenia bring "the terminal states into closer relations to the preceding clinical picture"? [3]

Long-term clinical and experimental studies on chronic schizophrenic patients were undertaken to reclaim the two questions formulated by Kraepelin over 40 years ago. The experimental techniques employed afforded opportunities for observing repeatedly, and over long periods of time, regressive and restitutive activities in the chronic schizophrenic patients. The alterations in behavior could then be described in terms of the appearance and disappearance of certain part-functions of the ego. Evaluations of such ego functions as relation to reality, object relationship, modes of defense, regulation and control of instinctual impulses, autonomous functions, and residual synthetic abilities provided a more comprehensive survey of the basic personality defects of the chronic patient than the classical descriptive methods.[4] Studies of the waxing and waning of particular ego functions enhance possibilities for aligning the current clinical state with the earlier forms of the disorder through dynamic and, possibly, genetic propositions. The clinical data in this report have been

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derived from findings in 63 chronic schizophrenic patients, who have been under observation for at least six years.

Development of the Investigative Work

The primary focus of this work has been on the changes that can occur within the individual clinical picture. Shifts in behavior appear either as an attempt at restitution or with deepening of the regressive process. It is, of course, impossible to achieve a "steady state" in the patient, the research unit, or the family. However, week-in, week-out observations under varying conditions on the ward and in the personnel, as well as in the physiological states of the patients and their family situations, reduce possibilities for attributing changes in behavior to adventitious events. In a pleasant custodial setting, the individual clinical picture might change either slowly and subtly over a prolonged period of time or precipitously and fleetingly, with no chance for observation by the investigators. For these reasons, behavioral changes were experimentally induced from time to time by biochemical techniques. The basic hypothesis upon which the experimental procedures employed rests is this: When significant physiological processes involving cerebral metabolism are temporarily interfered with or modified, behavioral changes of varying duration and degree may be anticipated in some chronic schizophrenic patients. The clinical data are evoked by temporarily modifying the internal physiological milieu. A biological maneuver is used to accentuate the clinical patterns, which are not otherwise readily discernible in the chronic patient. The prototype of this particular approach for the study of the reintegration and dissolution of ego functions was developed earlier in collaborative work with an experimental psychologist.[5-8]

Sixty-three chronic schizophrenic patients were separated into two groups on the basis of their reactions to a number of hydrazides, whose effects on brain metabolism are known.[9] One group of patients responded with remissible tendencies or with varying degrees of restitution of ego functions; they have been called the "potentially labile" reactors. The other group was composed of patients who responded little or not at all; they have become the "fixed, or static" reactors. The clinical and psychodynamic characteristics which distinguished the two groups were recognized. Since the remissible state in many of the "potentially labile" reactors was of short duration, two weeks to four months, the validity of the separation into two groups could be tested four or more times between 1953 and 1955. A by-product of this part of the study was a comparative method for evaluating the effects of newly introduced drugs. The effects of the psychotropic drugs could be observed in both groups of patients, labile and fixed reactors, and compared with the known and reproducible effects of the biochemical compound which was used in establishing the separation into two groups.

"Potentially Labile" and "Fixed" Reactions

The 63 patients selected for this study were chosen by the ward physicians of the Manteno State Hospital. They had been hospitalized continuously for at least five years. All had received the various physiological modes of treatment available before 1952. An age of 35 or less was desirable. Freedom from recognizable anatomicopathological change was mandatory. Openly assaultive and excited patients were not favored. The diagnostic label assigned most frequently was chronic schizophrenic reaction, undifferentiated type. Many of the patients had been emotionally abandoned by their families. The social histories were stereotyped and reflected the historian's bias regarding the medical or social factors predisposing to illness. The clinical statements in the records consisted chiefly of the dates of admission to and discharge from a particular hospital and the quantity and type of somatotherapy rendered. The pa-

tients were unable to provide a verbal account of their difficulties. This class of patients presented a superficially similar picture, with the early differences in clinical manifestations in abeyance. The similarity of clinical signs is a function not only of regressive factors but also of the social structure of the back ward of the state hospital. There, excited behavior, whether it is a manifestation of further regression or an attempt at restitution, may be treated identically,[10] either by disapproval of the ward personnel or by discouragement through sedation. Clinical material in this setting yields data consisting of active or passive trends, willingness to engage in or avoid group work and play, periods of relatedness or unrelatedness to fellow patients and ward personnel, spontaneous verbal productions, exchanges during interviews, quality of personal care, motility patterns, preoccupation with self, relatives, and home, changes in weight and sleep, and phasic patterns of behavior.

Two of the dimensions of a previously proposed conceptual model[11] for schizophrenic reactions are (1) potentialities for "labile" reactions (reversible states) or "fixed" reactions (irreversible states), and (2) the possible relevance of psychodynamic constellations to these reactions. In order to obtain information about the two dimensions in the 63 patients, hydrazides, of which the tuberculocidal agent isoniazid is an example, were administered. This class of drugs produces a pyridoxine deficiency in the brain over a two- to four-hour period. Changes in the activity of the cerebral cortex are reflected within 30 minutes by pronounced alterations in the electroencephalogram.[9] In large enough doses, the drug will produce a spontaneous convulsion in three to five hours. The entire biochemical process can, however, be reversed immediately, at any point, by the intravenous injection of pyridoxine. The effects of subconvulsant and convulsant doses of five different hydrazides were observed over a four-year period. When three or four convulsions were induced in the 63 patients, 48 exhibited some clinical change. The "potentially labile" reaction evolved regularly through graded changes in the clinical picture. Six grades were recognized. The first three grades were regarded as characteristic of the "fixed" reactors, while changes in Grades 4, 5, and 6 placed the patient in the "potentially labile" reactor category. There were 44 "fixed" reactors and 19 "labile" reactors.

Clinical and Psychodynamic Aspects of the "Fixed" Reactors

The first three grades of behavioral change induced by these drugs in this group of patients can be reproduced in almost all chronic schizophrenic patients. They are regarded as nonspecific responses to disruption of the internal physiological milieu. The clinical and psychodynamic aspects of the "fixed" reactors are as follows:

Grade 1: The initial changes observed were in the motility patterns. The facial musculature relaxed, so that the folds and creases around the mouth, nose, eyes, and forehead, which had been exaggerated or distorted, now appeared in normal contour. Overactive or inhibited motions of the large joints gave way to the synergistic qualities of the automatic associated movements. Mass movements were less common. Activities involving small joints became more dextrous. Changes in extraocular movements were also prominent: The fixed reptilian stare was not evident; extreme lateral gaze disappeared, and over-the-shoulder glances were diminished. Participation of the musculoskeletal system in the defensive activities of the patients was, for the most part, relinquished. Although not prepared for object relations, the patients seemed aware that they were not as forbidding as before.

Grade 2: Continued flexibility of motor patterns was followed by episodes of spontaneous activity. The regulatory control of impulses reappeared. Previously untidy and incontinent patients began to take care of themselves. They no longer pretended to

hide their interest in observing or listening to fellow patients and the personnel on the ward. Object relations shifted from negativistic attitudes to automatic compliance.

Grade 3: At this level, the "potentially labile" and the "fixed" reactors are separable. The "fixed" reactor engaged briefly in some of the group activities on the ward. As soon as he found himself in such close contact with others, the passive, compliant attitude was replaced by hostile outbursts, which were manifested either by assaultive attacks or self-destructive behavior or by withdrawal from the group, with the assumption of a defiant motor stance and the frequent shouting of invectives. Almost immediately thereafter catatonic posturing reappeared, and was accompanied by sleeplessness and refusal to eat. The return to the somatically defensive position was regarded a consequence of the patient's awareness of defective regulatory control of impulses when possibilities for object relations were reactivated.

The chronic schizophrenic patients who respond with fixed reactions fall descriptively into the passive catatonic variety. When they talk, they express their preoccupations chiefly in oral terms. There is almost exclusive concern with eating and objects to be eaten. They also express the feeling that, no matter how much they eat, they will not be filled up. One patient expressed this feeling concretely by stating that his esophagus began at the base of the skull and extended to the base of the spine, thereby filling up the entire thoracic and abdominal cavities. He assumed that other people were similarly constructed. Another patient consistently patted his protruding abdominal wall and indicated that he was not sure whether he was inside his mother's stomach or whether he had his mother inside him. Such patients live in complete anonymity. They hardly respond to their own names and are very likely to inform the examiner that they have no definite identity. This behavior was demonstrated by three such patients. They sat together, but did not communicate, by words, by looks, or by motor attitudes. Although they shared the same bench for a good part of each day for a year, none was able to identify the other except by some noun representative of an edible object. Such patients suppose that other people around them are just as hungry as they are. They act as though the people around them are starving and are in such distraught means that they will absorb the patient and so forever lose their identity. Their chief preoccupations seem to be in attempting to fulfill the fantasy of mutual passivity.[12]

The borderline state, Grade 3, in which there was a shift not only in the motor patterns but also in the direction of social activities and increased verbal communication, was seen to occur in withdrawn catatonic patients, who walked about the unit and complied automatically to most suggestions. Their postural patterns were stiffly exaggerated, and they behaved in a highly servile fashion. Their entire attitudes were caricatures of subservience to authority. The reversible state in them was ushered in by episodic outbursts of hostility and resentment. This type of behavior is frequently observed in the usual course of the chronic schizophrenic reaction.

Some Clinical and Psychodynamic Aspects of the "Potentially Labile" Reactor

The "potentially labile" reactor entered spontaneously into nonverbal but cooperative relations with fellow patients. The revived motor freedom was likely to be directed into such compulsive activities as excessive preening, repetitious arrangement of clothes and bed covers, and performing other housekeeping duties on the ward. The passive and compliant qualities of object relations were reflected in willingness to line up, mock military style, in the way obedient and eager grade-school pupils sometimes do before leaving their classrooms. They evinced satisfaction in maintaining proper distance, as though they had rediscovered their body boundaries and were

intent on preserving them and those of their fellow patients.

Grade 4: Freer communication on both motor and verbal levels appeared. The reactivation of memories of abandoned object cathexes was evident in inquiries regarding relatives and in the writing of letters requesting visits from specific members of the family. Sharper recognition of ego boundaries was seen not only in the growing mutual respect for patients' claims on certain seating arrangements in the dayroom and dining hall but also in their abilities to assert prior rights to a preferred position there. Previously passive and docile patients exhibited modulated affective discharges. They expressed their feelings verbally, without resorting to defensive defiance or paranoid projective techniques. Patients with predominantly paranoid symptomatology were able to reestablish premorbid defenses. Hostility, suspiciousness, and combative attitudes were replaced by oversolicitousness, docility, submissiveness, and superficial cooperativeness. The tenuousness of the defensive system was marked by the persistence of the oral and nasal positions in biting and snarling attitudes; speaking in soft tones; the reemergence of fragmented and disjointed speech patterns; the occasional recourse to neologisms, and the rigidly held, but slightly tremulous, body. They beseeched personnel to put them to work and boasted of the return of their energies. The less ambivalent among them were also highly seductive. These patients found positions as assistants to the various ward personnel. The majority of "labile" responders do not progress beyond this stage.

Grade 5: A restitutive process of short duration was noted in terms of a temporary reestablishment of relations with ward personnel and family members. Affective responses were, for the most part, appropriate. The negative portion of the ambivalence toward dependency was, briefly, relinquished. The positive side of dependent object relations was emphasized. The relation to reality, as well as the regulatory control of impulses, was maintained as long as memories of satisfactiory dependent relations persisted. For a short while they presented themselves in a child-like manner, inviting tender affection and approval. There were no plans made for the future; no defensive maneuvers except passive compliance. Evasiveness of leading emotional conflicts persisted. Within two to three weeks external object relations were abandoned. Internal representations of objects were activated in hallucinatory experiences. This was succeeded by resumption of the catatonic attitudes.

Grade 6: This appeared as a temporary remission of approximately one month's duration. During this period, bizarre symptoms disappeared. There was general planning for resumption of life outside the hospital. Relatively realistic appraisals of the possibilities for resuming former social and occupational roles took place. Autonomous functions, such as various intellectual abilities, manual skills, and artistic talents, became evident again. Conflictual problems were approached. In one patient the events leading up to the world catastrophic reaction were reconstructed. He reported that he had been greatly disappointed when he returned from work and had not found his wife at home. He left the house for a nearby tavern, where he had a few drinks. He returned to his apartment shortly thereafter and found his wife talking to a neighbor. He was prepared to scold her for not being home upon his return from work, but apparently her words were faster than his. She made some critical remarks about him. He became enraged and stepped toward her as if to choke her. He succeeded in taking two or three steps in her direction, then shifted his movements toward the open window, with the idea of throwing himself out. He stopped short of the window in acute panic and immediately developed feelings of unreality and a paranoid delusional system. He was able to talk about his feelings of inadequacy as a man and recognized that his relations with his wife were predom-

inantly on a dependent axis. He revealed deep understanding of the nature of this dependency, recognizing that fulfillment of his wishes would involve swallowing the mother-figure or being swallowed by her. He seemed to be quite aware of the hostile components of his attachment and indicated that this was an insoluble problem. He achieved a degree of interaction and communicability which attested to the high order of his integrative capacities. He soon, however, lapsed into more and more inhibited behavior. "Labile" reactions of similar quality have been reproduced in this patient six times in four years. Six other patients were observed in changes characterized here as Grades 5 and 6. The consistent psychodynamic patterns discernible are extreme feelings of inadequacy in assuming sexual identity, and persistently active defenses against fantasies of oral incorporation involving the person from whom dependent supplies were obtained. Clinically, depressive features have long since disappeared. The psychotic episode was relatively sharply delineated. The initial reaction was paranoid, but an excited catatonic reaction soon supervened. Eventually, a more placid catatonic reaction emerged and persisted. Although these patients provide evidence for good integrative capacity of short duration, the "labile" state is brief.

Ego Functions in the "Labile" State

When the gross clinical trends in chronic schizophrenic patients are considered in their relevance to ego functions, a more microscopic view of the data may be obtained. Pervasive disturbances are evident, of course, in object relations, in regulatory control of the instinctual drives, in relation to reality, in thought processes, and in the defensive, autonomous, and synthetic functions of the ego. A brief account of the malfunctioning or defection of one operation of the ego is both difficult and misleading. Nevertheless, a few examples may serve again to point up the nature of the clinical data.

An openly erotized reaction by a 36-year-old schizophrenic woman to the psychiatrist was followed by her announcement that she wished to take on the responsibilities of his office assistant, and, if desired, of other functions usually ascribed to mother and wife. During ward rounds, she persistently endeavored to act on this proposition. She offered her handwritten observations on other patients and a document which purported to solve difficult psychotherapeutic problems. These acts not only attested to the quality of her object relations but to impairment of other ego functions. Nevertheless, patients with persistent longings of this type which are expressed through verbal and motor channels constitute part of the "labile" group of reactors. This patient was able to persuade one of the physicians to facilitate her release from the hospital almost three years ago. Indeed, six months afterward she found and married a man who filled her needs. From all reports he is a prototype of the doctor with whom she lived in the years preceding her psychotic reaction. She had taken care of his office and served him well. The doctor's aged mother, however, had objected to their plans for marriage.

Another "labile reactor," a woman of 32, labeled as showing paranoid schizophrenic reaction for many years, presented herself as a little girl who spoke "baby talk" and referred to herself as "princess." She reported, without guilt or shame, a dream in which she was reunited with her father. She "jumped into daddy's open coffin as it was being lowered into the grave." While regulatory and defensive functions were deeply impaired, the patient's ability to report undisguised material attested to the activation of memories of an earlier and satisfactory relationship with her father which was not entirely fantasy. Among the chronic schizophrenic patients studied, this patient's ability to cathect objects would be considered relatively high. That she has now been adjusting extra-

murally for almost a year is not necessarily evidence of improved synthetic and defensive functions. She has been living in the parental home, where she is free to provide for the needs of her sick and aging father, so that there are no real obstacles to obtaining primitive gratifications.

In still another context, patients who, regardless of their withdrawal and suspiciousness, cathect memories of home and insist that they wish to return there are frequently aware of the possibilities of reestablishing a relationship with a family member that will permit them to live outside the hospital, albeit in limited emotional circumstances.

Even primitive identificatory behavior constitutes a manifestation of continued reactivation of memories of object relations and constitutes a quality of the "potentially labile" reactor. While talking to a patient, the interviewer may learn that he has grimaced in a certain manner when he sees the mirror image of the expression on the face of the patient. The examiner's consciousness of a particular limb movement or position is aroused when the patient adopts the same position.

These observations demonstrate that the multiple opportunities for studying the development of certain ego functions in chronic schizophrenic patients have not yet been fully exploited. The extension of such studies into clinical psychiatry enhances chances for describing minor behavioral changes and their possible relations to the over-all management of the patients. Although the estimation of each particular ego function does not have intrinsic prognostic function, more accurate determinations of the fate of particular schizophrenic patients may be eventually developed if we can estimate what support the family and social environments can give to the basic ego defects in the patient.

Summary

Two clinical questions unsolved by descriptive psychiatry are readdressed. Is it possible to differentiate more precisely among the various types of chronic schizophrenic states? Can the terminal phases of schizophrenia be more clearly aligned with their earlier clinical forms?

An experimental method involving biochemicals of the hydrazide series was employed in 63 chronic schizophrenic patients in order to induce behavioral changes which would ordinarily occur slowly in the course of the disorder. This technique facilitated the separation of the patients into "fixed" and "potentially labile" reactors.

The clinical and psychodynamic aspects of "fixed" and "labile" reactors are described in terms of ego functions, and some reference is made to their earlier clinical forms.

Some examples of the quality of ego functions in "labile" reactors are provided.

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Effect of Meprobamate on Stimulus Generalization Under Experimental Stress

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The widespread use of meprobamate and other ataractics in clinical practice is essentially based on the assumption that these drugs decrease the deleterious effects of what generally has been referred to as anxiety. Perhaps most necessary to research in this area is a controlled test of the assumption which underlies the administration of the ataractics. A survey of the available literature indicates that research with so-called tranquilizers has been primarily concerned with either the clinical effectiveness or the physiological and psychological untoward effects of the drugs,[1,4-6,10] but not directly with tests of this critical assumption.

While it is well established that clinical studies are valuable and vital in the accumulation of data for drug evaluations, it is also apparent that the interpretation of many of these data is limited and unclear because of serious methodological shortcomings. For example, in dealing with attempts to evaluate the effectiveness of meprobamate, some clinical studies failed to employ control groups with which to compare their medicated subjects.[1,5,10] Consequently, it is not possible to determine whether changes in behavior are attributable to the action of meprobamate or to some other variable, such as being hospitalized or spontaneous remission. Other investigations tended to deal with heterogeneous groups of subjects (groups which were not equated or matched on such variables as degree of anxiety, duration of illness, age, or type and length of treatment),[1,10] and still others unsystematically varied their experimental procedure in the details of treatment [1,4,10] and in confounding the effects of psychotherapy with those of meprobamate.[10] Without control of the above-noted subject variables and details of the experimental procedure, it is impossible to attribute differences which may appear between groups or changes in behavior to the effects of the drug under evaluation. Finally, most clinical studies employ ratings and subjective judgments as the means of assessing psychiatric improvement. These ratings usually involve a single global judgment of "no improvement," "slight improvement," "moderate improvement," etc. Typically, these categories are not defined in advance by behavioral criteria which permit a consistent frame of reference for all raters to use; but, instead, each rater is left to his own devices and orientation in establishing the criteria. In addition, the ratings may be spuriously affected by the patient's verbal statements about the effect of the treatment, although there may be little relationship between his verbal statements and his actual behavior.

The present experiment was designed to test the hypothesis that one ataractic, meprobamate, will facilitate the performance of subjects under experimental stress. The choice of meprobamate was made on the basis of several considerations: It is widely used in medical practice; there is no established cumulative effect in the blood, and one

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400 mg. tablet rarely produces untoward effects.

In order to test the experimental hypothesis, we used a procedure which involved a known anxiety-producing stimulus, strong electric shock, and a task on which the predicted response to stress has been established, stimulus generalization (SG). Strong electric stimulation has been shown to elicit responses traditionally associated with the concept of anxiety, such as avoidance, and performance deficit in time and errors. SG is said to occur when a response previously trained to be elicited by stimulus A_0 can also be evoked by another stimulus, A_1, which is similar to A_0 but varies from A_0 along some dimension, such as size, intensity, frequency, or space. This second stimulus will elicit the trained response to a less pronounced degree or with lower frequency as A_1 becomes less like A_0. While the task is likely to vary, the procedure for SG typically involves training the subject to respond to a particular stimulus, in this case a light located at a certain place, and then presenting the subject with other lights which are obviously nearer and/or farther in space from the original stimulus. The frequency of responses of the subject to the nearer and farther lights is a measure of generalization.

Previous research indicates that the effect of anxiety on SG is to increase the height and/or slope of the generalization gradient.[7-9] If the effect of meprobamate is to reduce anxiety, then medicated subjects performing under experimental stress should show less increase in errors to nontrained stimuli as compared with subjects performing under no stress. A placebo group was added to the design to control for the effects of the instructions and "taking a pill." If meprobamate produces the hypothesized effect, then the performance of the placebo group should be similar to that of the controls and different from that of the drug group.

Method

Subjects.—One hundred forty-four undergraduates evenly divided as to sex were assigned to one of three experimental conditions: medication, placebo, and control. Half of each group performed under experimental stress, while the other half performed under no stress.

Apparatus.—The generalization apparatus was adapted from the one used by Brown, Bilodeau, and Baron.[8] It consisted of seven frosted lamps mounted at 4-degree intervals in a horizontal row on a black stimulus panel. The panel was curved so that all lamps were equidistant from S, who was seated 4½ ft. in front of the center lamp with his preferred hand resting on the response key. A red light above the center stimulus served both as a fixation point and as a ready signal. E controlled the lights by means of a silent selector switch and was effectively hidden by the stimulus panel.

Shock was administered by means of electrodes attached to a leather wristband and fastened with electrode paste to S's nonpreferred wrist. The electrodes were wired to a Variac, which controlled input voltage and was supplied by a 6.5 volt dry cell. This apparatus provided a constant-current output in order to minimize variations in skin resistance. A sample shock was set at 0.5 ma. and all test shocks were set at 3 ma.

Procedure.—Immediately upon entering the testing room, S was told whether or not he was to receive shock. He was then instructed to hold the response key down with his forefinger until the center lamp was activated, at which time he was to lift his finger from the button as quickly as possible. He was told that we were interested in measuring his speed of response to the center lamp, and that he should not be concerned if he responded to the peripheral lights by mistake. S was presented with 15 training trials to the center lamp, 10 to 20 seconds apart. The period between the onset of the ready signal and the stimulus presentation was randomly varied from two to five seconds. The training trials were immediately followed by the test series, in which each of the peripheral stimuli was presented 4 times among 104 "booster" trials to the center lamp, making a total of 24 test trials. Six different orders were used, each beginning with a different peripheral lamp. In order to maintain speed of response, S was reminded to increase his speed when his latency exceeded one-half second. Latency was measured to the nearest 0.01 second by a Standard Electric timer.

Instructions for shock Ss included the following features: He would receive intermittent shocks of increasing strength which would be unrelated to his performance, so that he could not prevent or avoid their occurrences. A light sample shock was administered at the start of the procedure. Successive shocks occurred at the 8th training trial and at the 16th and 32d trials of the test

Summary of the Analysis of Variance of the Generalization Gradients

Source of Variation	d.f.	Mean Square	F
Between subjects	143	--	--
Shock	1	0.227	0.15
Drug	2	0.647	0.42
Shock+drug	2	14.203	9.22 *
Error (between)	138	1.540	--
Within subjects	720	--	--
Lights	5	9.605	20.44 *
Lights+shock	5	0.346	0.74
Lights+drug	10	0.553	1.18
Lights+shock+drug	10	0.330	0.70
Error (within)	600	0.470	--

* $P<0.001$.

series, with two booster trials before and after each shock stimulus. Any S who protested excessively was excused from the experiment; two female subjects took advantage of this opportunity after the first test shock.

Medication was administered individually by a psychiatrist one and a half to two hours before the experiment. To approximate typical clinical procedure, S was told that "this is a pill which makes some people feel more relaxed," and was asked to swallow either 400 mg. of meprobamate or a placebo of identical appearance. A double-blind method of administration was followed, so that neither S nor E knew which pill had been taken. No subject refused the pill, and no untoward effects were reported. It may be added here that the dosage was chosen to approximate clinical procedure, and the time interval allowed for optimal effect of the drug was suggested by the research director of a laboratory which distributes this drug.

Results and Comment

A Lindquist Type III analysis of variance [3] was used to test for differences in the shape of the gradients obtained for the six groups. The Table summarizes the results of this analysis. It will be noted that the within-subjects variance for lights was highly significant at beyond the 0.001 level, indicating that generalization here occurred for all groups. The interaction between the two main variables, drug and shock, was also significant at beyond the 0.001 level. More specific tests of this differential effect were obtained by means of Lindquist Type I analyses among all groups.

Figure 1 shows the gradients of response frequency in percentages for drug, placebo, and control groups under shock. The group performing under meprobamate made significantly fewer responses to the peripheral lights than the controls, but there was no difference beween their gradient and that of the placebo group. Thus, the placebo and the meprobamate group were different from the controls but were not different from each other. In terms of the hypothesis under investigation, meprobamate did appear to reduce errors and facilitate performance under stress. However, this same effect was reproducible with a group given no more than a placebo and the same suggestion about the action of the pill. This finding tends to suggest that the ingredients of the medication may be no more effective than the subject's set concerning what he believes the drug will do to or for him. While these results may have implications for clinical practice, the specific nature of the experimental situation

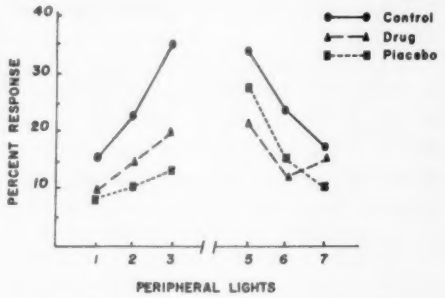

Fig. 1.—Gradients of response frequency in percentages for drug, placebo, and control groups under shock.

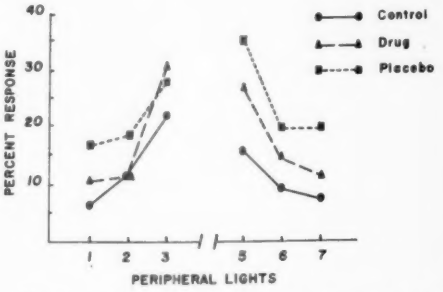

Fig. 2.—Gradients of response frequency in percentages for drug, placebo, and control groups under shock.

restricts, of course, such an extension at this time.

The gradients of response frequency in percentages for drug, placebo, and control groups under no shock are presented in Figure 2. The meprobamate and placebo groups once again showed no difference in gradients of generalization, but both were significantly higher than the gradient for the controls at the 0.05 level or less. On the basis of previous literature which indicates that a dose of meprobamate as large as 800 mg. does not adversely affect simple reaction time, discrimination reaction time, problem solving, or driving skills,[4,6] it seemed reasonable to expect no differences among the groups under no stress. The differences that did emerge do not appear to be related to the action of the meprobamate but more likely reflect the effect of the subjects' set in relation to being given a pill. To evaluate further the effects of this set, we compared the drug and placebo groups under stress and no-stress conditions. The data clearly indicate that these groups performed at a similar level under both stress and no stress, suggesting that the effect of taking a pill was to maintain a stable performance without discriminating the differences between these conditions. In contrast, the control subjects responded differentially to stress, and this difference was significant at less than the 0.001 level. Thus it seems that taking a pill under suggestion enhances performance in some situations and impairs performance in others, but with no discrimination between situations. It might appear, then, that prediction of behavior under medication may be very tenuous without a prior knowledge of all the kinds of situations in which the subject is expected to respond.

In conclusion, it bears repeating that the major hypothesis under investigation was not substantiated. Meprobamate proved to be no more effective in facilitating performance under strong experimental stress than did a placebo. The implications for clinical practice remain limited without further research. The implications for further research point to the need for an extension of the present approach to clinical populations in a wide variety of situations, including varying doses of the drug, and an increased attention to the variable of suggestion and set in the examination of medication effects.

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Hypnosis and Transference

A Theoretical Formulation

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The Dilemma

Ever since Freud identified hypnosis with transference, there has been a general reluctance to accept the notion that hypnotic induction and the trance itself is entirely and specifically a transference phenomenon.

Freud himself, in "Group Psychology and the Analysis of the Ego," speculated that there is more to hypnosis than transference. He stated:

> Hypnosis would solve the riddle of the libidinal constitution of groups for us straight away, if it were not that it itself exhibits some features which are not met by the rational explanation we have hitherto given of it as a state of being in love with the directly sexual tendencies excluded. There is still a great deal in it which we must recognize as unexplained and mystical. It contains an additional element of paralysis derived from the relation between someone with superior power and someone who is without power and helpless—which may afford a transition to the hypnosis of terror which occurs in animals. The manner in which it is produced and its relationship to sleep are not clear; and the puzzling way in which some people are subject to it, while others resist it completely, points to some factor still unknown which is realized in it and which perhaps alone makes possible the purity of the attitudes of the libido which it exhibits.[1]

Why are some hypnotizable and others not? If transference produces hypnosis, then why cannot all who have transference be hypnotized? Can hypnosis occur without transference? What is rapport? Is it the same as transference? If not, how does it differ? One can also raise the question as to whether transference enhances hypnosis, or vice versa. Or, is transference an offshoot of hypnosis? Or, are hypnosis and transference identical phenomena? These and many other combinations of theoretical speculation are well documented in the literature.[6-8]

This perplexity of understanding hypnosis in terms of transference reminds us of the definition once offered for pharmacology, namely, the study of drugs, about which we know little, and their introduction into the body, about which we know less.

It seems to me that much of this confusion arises from (1) the effort to correlate data from hypnotic phenomena with the libido concept of transference, i.e., the reenactment of infantile sexual conflict with or without direct sex manifestations, (2) the assumption that transference occurs only in analysis, and (3) the assumption that transference is either positive or negative. These assumptions have hampered further development of our understanding of hypnosis. We are no further advanced in this context than was Freud, who gave up. Unless we reformulate our reference frame, we shall, in all likelihood, remain baffled.

The libido concept of the transference is so vast in its scope that it sometimes bogs down by its own weight, and thus limits its usefulness as a reference frame in clinical research. For purposes of research and categorizing clinical and experimental data, it is possible to operate with a less formidable, more modest reference frame and still make sense out of presumably unrelated data. If, for example, we focus on transporting a carload of goods from New York to Chicago, does it make much difference whether the locomotive pulling the car is

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powered by oil, coal, or electricity? Of course not. Perhaps, we may want to shift our focus of interest from movement of material from one place to another to the over-all issue of all transportation, including the sources of energy for the train—but that then becomes a qualitatively different issue of interest. Similarly, without engaging in the pros and cons of the libido theory (which so far is not proved or disproved by scientific methodology), and without professing a belief either for or against it, other investigative work dealing with significant facets of human behavior can go on, and perhaps at some later time be coordinated with such issues as energy source and universality of some transactions. There is even the possibility that, working with a less vast frame of reference, we can ultimately produce more knowledge and data that will throw further light on the broader thesis.

Transference

It is possible thereby to formulate a workable operational concept of hypnosis in terms of transference if we limit the definition of transference to simply that aspect of the modality of relatedness that is irrational. Janet Rioch, in 1943, following Horney's lead, discussed transference as an interpersonal experience and emphasized the willingness to surrender as a crucial precursor for the trance experience.[2] In 1945 Thompson further developed this notion and showed that, although analysis aims at resolving the irrational attitudes (that is, the transference), one can also therapeutically use the irrational attitude without resolution.[5] Silverberg, in 1948, emphasized that in transference the irrational quality was related to the repetition compulsion (a significant consideration in the posthypnotic suggestion) and also described a disagreeable tone to the experience.[3]

Definition

With this newer operational construct, the following working definition of hypnosis can be offered: an altered state of relatedness characterized by an irrational submission, with abandonment of executive control into a more or less regressed, dissociated state, which is actively instigated, and knowingly enhanced, by the hypnotist. This is simply a transactional descriptive statement of what may happen in hypnosis.

Another way of stating this is that the trance induction and the trance maintenance constitute a pure transference experience. Or, the trance induction is the transference action, and the trance maintenance is the transference in a "frozen state."

Theories

There is a wide variety of theories about the nature of hypnosis. Time does not allow a comparative appraisal of them in this paper, but I may briefly mention these categories as Wolberg[8] summarized them.

1. Pathologic, e.g., hypnosis is a form of hysteria
2. Physiologic, i.e., a physical cerebral change
3. Animal immobilization
4. Sleep
5. Dissociation
6. Conditioned reflex (Pavlov)
7. Psychological
   - (*a*) Suggestion
   - (*b*) Psychoanalytic
   - (*c*) Psychosomatic—Wolberg has offered this theory, which is inviting because he accounts for the totality of the experience to the subject and at the same time accepts the applicability of the transference.
   - (*d*) Abstract conditioning—Weitzenhoffer, in psychological terms, describes a transition from suggestibility to what he calls homoaction, to generalization, to heteroactive hypersuggestibility.[6]

Theory

The theory that I now wish to present is similar to some of these but has a specific formulation of its own. I see the trance phenomenon as a three-stage operation with considerable overlapping between the stages. The first stage is the aura. This is the phase that is anticipatory and anxiety-provoking to an extent that it elicits whatever transference potential is present in the subject. If the pretrance reputation of the

hypnotist, or his appearance, or his presentation is such that it coincides with the transference predisposition of the subject, much occurs during this phase that leads to the depth of the trance. The second phase I regard as the psychophysiological enhancement. Here, the art of induction consists of indicating in advance, the known and predictable psychophysiological phenomena which occur with the instructed position, and tacitly implying that the phenomena are due to the signal of the hypnotist. In addition, fatigue resulting from repetition and time endurance accentuates the effect. The third phase I refer to as the "plunge." This is where the abandonment of executive controls and irrational submission into a dissociated state takes place. By way of analogy this is something like the coach and the swimmer. The coach can guide the swimmer to the edge of the pool, can give instructions about how to jump, can even anticipate the actions in the water, but at some point the swimmer himself has to take the plunge into the water. The nature of the tie that the swimmer has with the coach can determine the ease, the speed, and the confidence that the swimmer has in exploring the water. Just as the coach has the power to structure the arena and the direction for the plunge, so the hypnotist has the power to structure in a broad way the nature of this irrational plunge into submission with relative abandonment of executive power. In Weitzenhoffer's concept, his reference to "the hocus pocus or being helped along at times by natural tendencies"[7] is, I believe, another way of referring to the irrational nature of this plunge, and his formulation of "hetero-active hypersuggestibility" is the continuation of this regressed, irrational relatedness. In this sense hypnosis can be regarded as a structured chunk of transference or transference in a frozen state.

"Compulsive Triad"

What becomes progressively apparent during these three stages is a basic unit of compliance which becomes most easily identified later in the so-called posthypnotic suggestion. This basic unit I call the "compulsive triad." Its three characteristic features are (1) the compulsive nature of the compliance, (2) the amnesia to the suggestion, and (3) the rationalization offered to account for the compulsive performance. Whatever conglomeration of forces is necessary to account for the vulnerability or talent to go into a trance is included in this phenomenon in such a way that it can be regarded as a chunk or unit that is tapped by the hypnotist to induce and maintain the trance. Without the, at least partial, presence of this "compulsive triad" the hypnotic trance will not occur. It is my postulation that this unit of responsiveness is the same phenomenon in both transference and hypnosis. This triad concept allows us to formulate that, although the hypnotic induction and trance maintenance are indeed transference, we cannot say that all transference is hypnosis. To illustrate this point. Some years ago a patient I know was caught in a hazy, desperate trapped situation with insensitive, unloving parents. In his desperate effort to get help he consulted a famed neurologist, who quickly confirmed the hopeless quality of this young man's home environment and, by way of emphasizing this point, said to the patient: "Young man, you ought to get away from your parents as far as you can. Why don't you go to Alaska?" Although the patient was intellectually aware that this was a picturesque way that the doctor used to make his point, he found that as weeks went on he developed a mounting tension about his not going to Alaska. The urge to go became reinforced with various rationalizations, like "I can find a new job up there," "the fresh air and exercise will be good for me," "I might meet new friends up there," "travel is good for anyone," until eventually he literally left town and moved to Alaska. After arriving there, he did notice a marked relief of his tension but had an empty feeling about what he would do. After several months of trial-

and-error efforts at work he came back to his home city. Here is an instance in which, although hypnosis was not involved, the triad of the posthypnotic suggestion was apparent. He tended to forget the original context of the suggestion to go to Alaska, but instead regarded it as a command with a compulsive undertone; and, by means of weak rationalizations, he accepted the idea and acted out the command, with subsequent relief.

The clearest-cut illustration of this compulsive triad is the posthypnotic phenomenon of the subject capable of a *deep* trance. If while in a trance a posthypnotic seed or signal is planted and the subject is told, for example, that at some time after he is out of the trance he will be offered his favorite cigaret and that, after two puffs, he will develop a mild sensation of nausea that will last no longer than a few minutes; and, in addition, he is told that this will be somewhat amusing to him, it is predictable that (1) he will develop the nausea, (2) he will not have total awareness of why this incident occurred, and (3) his rationalization will be some mild joke about a "stale cigaret" or "I'm just getting over a cold," or "I guess I've been smoking too much."

One of the conditions for the trance as I have defined it is that the hypnotist instigate and knowingly enhance the trance. Here is an example of a borderline instance that is almost, but not quite, an exception to this. Once while doing experimental work on a hospital ward, several of the subjects apparently talked about their trance experiences during their social get-togethers. One of the men on the ward who was not selected as a subject for this project came to me one day and said, "Doctor, you couldn't hypnotize me even if your wanted to." While saying this, he looked at the card on my desk with a pencil dot in the center, and he no doubt had heard from the other men on the ward that that was the card they looked at when going into a trance. While he was making this apparently defiant statement, I noticed that his right eye closed and his left eye remained open. At that point I said to him: "Then why can't you open your right eye?" At that point he struggled to open his eye but could not, and at the same time defiantly reminded me that his left eye was still open. I then told him that I wanted him to look at the pencil dot. He did. Both eyes quickly closed. He became another volunteer subject for the experimental project. Although it is true that in this instance the hypnotist did not directly instigate the trance induction, the subject did come prepared with a convergence of all the necessary factors for a trance except the active participation of the hypnotist. When this was offered, the relationship became structured as a hypnotic trance, as defined above.

The phenomenon related to the trance itself is different from the spontaneous or elicited experience or recall that is accessible within the hypnotic framework.

Several years ago at the School of Military Neuropsychiatry I hypnotized a 25-year-old soldier for teaching purposes.[4] At the time I did not know much about his history. He was able to go into a deep somnambulistic trance and responded alertly and appropriately to each hypnotic signal. When he was regressed to various levels, he also responded without difficulty, until he was signaled to place himself back to his 12th birthday. When I asked him his name (as I had done previously at older age levels), he looked at me with some confusion and tension but did not answer. When pressed for an answer, he looked about and inquiringly said: "Vass?" It then dawned on me that he did not understand English. I obtained a third person who spoke German, and with him serving as translator, the subject seemed quite relieved and we continued our interview and planned test program. The interpreter was subsequently necessary for every age level up to and including the 13th birthday. We discovered that at the age of 13½ years he escaped from Vienna to the United States, and by

the time he was 25 years old his fluent English showed no trace of his native German tongue—a language he learned to despise, so that he had difficulty with both speaking and understanding it. Even his handwriting reverted to German script at any age level under 13. From the ages of 13 to 18, while under hypnotic regression, his spoken English revealed a gradually disappearing German accent.

Yet, despite this need to use an interpreter at ages under 13 when interviewing him, he could understand and did respond without evidence of confusion to my instructions relating to his state of trance. For example, when interviewing him at the 10-year level, I said: "When I touch your forehead, your eyes will close," or "You are now going back into the years; you are getting younger; you are now 6 years old—this is your 6th birthday," his response to this was so clear that there was no doubt whatever that he understood exactly what was said. Again, at the age of 6 years, when I asked him, "How old are you?" he looked around with confusion and asked "Vass?"

Submission and Dissociation

Among the fascinating and challenging features of hypnosis are the different styles that subjects have in responding to the hypnosis situation. In addition to the important feature of depth that can be measured by various test situations, there is the quality of submission and the quality of dissociation. It is these two that I wish to discuss now. Some subjects show a *marked submission* but relatively little evidence of dissociation in terms of the relationship to the hypnotist. I have in mind one 20-year-old college student who goes into an almost complete collapse to catalepsy, yet all during the trance gives evidence of being completely aware of his orientation to time, place and person, and when focused on past periods, talks about them with historical perspective rather than living in the period of the past as if it were the present. On the other hand, there are patients who show *marked evidence of dissociation,* but relatively little evidence of submission. For example, I am now working with a 50-year-old woman who goes into intense revivification of past experience and also is able to go into phantasy spiritual experiences with such affect and intensity that she often asks to rest and relax in order to regain what she calls her energy and equilibrium. Although eye-closure is obtained, it is difficult to elicit the usual sensory and motor alterations that accompany the deep trance. When her hands are closed together and she is unable to separate them, she is apt to say: "My, oh, my; isn't that amazing!"

These somewhat divergent responses can be understood if we consider at least two variables: (1) the specific nature of the transference modality itself and (2) the strength of the ego or the consistency and organization of the self-image at various eras of the past. For example, if submission is essentially the major adaptive modality that the subject has learned to use, and if the self-concept in the past was usually hazy and uncertain, then this quality of submission is the predominant aspect of the trance. If dissociation was in the past a major modality of protection with repeated enhancement of dissociation of the self (schizophrenic), then this quality of dissociation predominates in the trance. If the self-concept in each era was fairly well integrated and yet irrational submission was still an effective modality, then old integrative levels can be exposed, revivified, and recovered.[4]

Usefulness of This Thesis

Transference in a "frozen state" can be identified and observed.

If this thesis is valid, the above data can add to our knowledge of transference in nonhypnotic states.

Clinical and experimental methodological studies with controls in hypnosis, performed both within and outside psychoanalytic frames of reference, can add to our understanding of transference.

Differentiating the transference from spontaneous or elicited data in hypnosis will serve to clarify investigative and therapeutic data.

The use of transference as a therapeutic device can be extended.

This is a challenging arena in which to study both clinically and experimentally efforts to resolve the transference aspects of relatedness.

Summary of Thesis

1. This thesis, then, represents a reversal of the original concept that the hypnotist projects some mysterious force onto the subject. Instead, it is the hypnotist who structures an occasion for the subject to activate a capacity already developed within himself.

2. As a reference point, transference is defined as that aspect of the modality of relatedness that is irrational. This specific and circumscribed construct is operationally useful, even though it does not encompass the issue of energy source.

3. Alteration of relatedness, irrational submission, abandonment of executive control, regression, and dissociation all occur frequently and in varying combinations; but it is not hypnosis unless these factors converge in a transaction that is actively and knowingly structured by the hypnotist.

4. The "compulsive triad," i.e., compulsivity, amnesia, and rationalization, more striking in the posthypnotic suggestion, is identified as a constellation that can serve as a unit of accessible adaptive behavior that is tapped, activated, and structured by the successful hypnotic induction.

5. Manifestations in hypnosis other than those related directly to the induction and maintenance of the trance are in no way unique to hypnosis, but can sometimes find facilitation of expression in the trance.

6. The hypnotic induction process may contain rational, conscious, cooperative components (rapport) during the first (aura) and second (psychophysiological enhancement) phases. But this is merely preparatory for the gradual emergence of the irrational modality. Certainly, by the third phase ("plunge"), the completion of the induction activates "pure" transference, and the trance maintenance becomes "frozen" transference.

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Sound Localization Ability of Normal, Stuttering, Neurotic, and Hemiplegic Subjects

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Ability to localize a pure tone sound has been suggested by Sanchez Longo, Forster, and Auth [1] as an important diagnostic sign of possible brain damage. These investigators noted an impairment in localizing ability in the contralateral field of five humans having temporal lobe lesions. This finding follows earlier research, which dealt primarily with auditory representation on the human cerebral cortex, with the factors involved in localization of sound by humans in a free field, and by animals whose auditory cortex had unilateral or bilateral ablation.

In their studies of the human cortex, Penfield and Rasmussen [2] noted that stimulation of the temporal convolution at a distance from the fissure of Sylvius was likely to cause interpretation of sound. On the other hand, stimulation affecting the area close to the margin of the fissure of Sylvius seemed to produce sensations of simple tones or ringing. Finally, they noted that sound may be lateralized to the opposite ear by patients. This suggests, according to these authors, that a large proportion of auditory responses from each ear reach the contralateral cortex.

In free-field tests, experimenters have concluded that for localization of pure tones, differences in intensity are more important at high frequency, while differences in phase are more important for low frequencies.[3,4] Hirsh,[5] reporting on localization of sound when it is delivered by earphones, concludes that a binaural stimulus delivered in phase produces a sensation of sound coming from the center of the head. When it is presented out of phase, the auditor has the sensation of hearing it at his ear. The author considers it impossible to localize pure tones outside the head when presented binaurally over earphones.

With reference to studies on animals, the cortex has been the principal area investigated with reference to localization. Analogous records of electrical currents resulting from stimulation of the auditory cortex by sound have been found in both cats and humans.[6,7] Neff, Fisher, Diamond, and Yela [8] demonstrated on cats a deficit in ability to respond appropriately to a sound cue involving localization of sound in space when the animal's auditory cortex was bilaterally ablated. Thus, difficulties reported in localizing sound among humans having temporal lobe lesions are not surprising. The meaning the complex subcortical fibers may have for localization theory has not been fully investigated.

Recently, Stewart [9] observed a difference in the ability of stutterers and nonstutterers to localize sound presented as pure tones. Such an observation, in terms of the research just reviewed, suggests the possibility of some neurological involvement in stutterers. To clarify further the meaning of these observations and implications, the present experimenters studied two aspects of localization—consistency and frequency

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of response in normal, stuttering, neurotic, and hemiplegic subjects.

Procedure

Subjects.—Sixty-seven persons served as subjects. There were 20 normals, 20 neurotics, 20 stutterers, and 7 hemiplegics. Each subject had essentially normal hearing for the three frequencies used in this study—500, 1,000, and 2,000 cps. No person participated who had a difference in acuity of more than 20 db. between ears or a loss of acuity of more than 20 db. for any of the frequencies tested. With the exception of one child in the psychoneurotic group who was of borderline intelligence, every person was of at least dull-normal intellectual caliber. There was no evidence of brain damage in the normal, neurotic, or stuttering group. Each group maintained its basic identity. Thus, a person had to fall wholly within one group and not have any of the characteristics or symptoms commonly ascribed to any of the other groups in the experiment.

Persons used in the normal group were volunteers from public schools who met the above criteria. They included 10 boys and 10 girls, ranging in age from 9 years 8 months to 12 years 8 months. The mean age was 11.3 years.

Stutterers included in this research were enrolled in the University of Kansas Medical Center Speech Clinic. The mean age for the group was 11.2 years, and the subjects ranged in age from 9 years 7 months to 12 years 9 months. There were also 10 boys and 10 girls in this group.

The emotionally disturbed group of children were tested at a state residential school where complete psychiatric, psychological, and neurological evaluations were available. There were 14 boys and 6 girls, ranging in age from 8 years to 13 years 4 months, with a mean age of 11.1 years. In this group, 4 of the children were classed as having a schizophrenic reaction, and 16 children had disorders which could be classed as psychoneurotic.

Originally, it was planned to have 20 subjects in the hemiplegic group. A comprehensive survey of educational facilities in the greater Kansas City area disclosed only seven subjects—five boys and two girls—who met the criteria for inclusion in this study. These were four with right and three with left hemiplegia, who ranged in age from 7 years 9 months to 15 years 7 months, with a mean age of 11.1 years.

Equipment and Method of Testing.—A pure-tone threshold was obtained for each subject at 500, 1,000, and 2,000 cps. Thresholds for the normal, stuttering, and hemiplegic group were taken in the auditory testing rooms of the University of Kansas Medical Center. Thresholds for the neurotic group were taken in a quiet room located in an isolated wing of the state residential facility.

In the experimental condition, each child was presented a pure-tone stimulus to his right ear three times, to his left ear three times, to both ears out of phase three times and to both ears in phase three times. The order of presentation of these stimuli was determined by use of a table of random numbers for each group. Two levels of intensity presentation, 15 and 30 db. above the previously determined thresholds, were utilized for all experimental conditions. The child was instructed to inform the experimenter as to where he thought he heard the sounds. He was told that it was possible to perceive a sound (1) in one or the other ear, (2) in both ears simultaneously and/or in his head, or (3) somewhere outside his head.

A Maico F-1 Pure Tone Audiometer was used as the signal generator in this study. The output dial was left at its maximum during the entire testing procedure. The signal was monitored for each ear by insertion of a 100×10 db. Hewlett Packard Attenuator in each line. A manual switch provided the means for reversing the phase of the stimulus. ANB-H-1A earphones with MX-41/AR cushions were used. These were checked initially and periodically during the experiment to ensure equal sound pressure for the two earphones.

Results and Comment

Consistency of Response.—None of the early studies reviewed in this paper comment on the phenomenon of consistency of response. Whether or not a person is able consistently to report perceiving a sound in the same place becomes of extreme importance if difficulty in localization is to be a valid pathognomonic sign. It was assumed that the fewer the number of patterns observed in each group the more consistent would be the group response to the experimental condition. This consistency was calculated using the principles for figuring a type-token ratio. In the case of the normal, neurotic, and stuttering groups, the highest ratio obtainable (most inconsistent) was 100%, and the lowest ratio obtainable (most consistent) was 5%. For the hemiplegic group the highest ratio obtainable was 100% and the lowest obtainable was 14%.

For binaural stimulation, whether in or out of phase, the most consistent (fewer) patterns were observed among the normal

TABLE 1.—*Mean ($\overline{X}$) Percentage Scores of Consistency for Binaural Stimulations for the Total Group and Subgroups* *

	Over-All $\overline{X}$ %	Out of Phase $\overline{X}$ %	In Phase $\overline{X}$ %	Over-All $\overline{X}$ % 15 Db.	Over-All $\overline{X}$ % 30 Db.	Out Phase 15 Db. $\overline{X}$ %	Out Phase 30 Db. $\overline{X}$ %	In Phase 15 Db. $\overline{X}$ %	In Phase 30 Db. $\overline{X}$ %
Normals	33	28	38	37	28	32	23	42	33
Stutterers	46	43	49	46	46	48	37	43	55
Neurotics	54	57	51	58	50	60	53	55	47
Hemiplegics	70	69	71	71	69	71	67	71	71

* The level above threshold at which auditory stimulation is presented is indicated by the symbols 15 db. and 30 db.

group. Table 1 shows the mean ratio for binaural stimulation under all phase conditions to be 33% for normals, 46% for stutterers, 54% for neurotics, and 70% for hemiplegics. When the mean ratio was computed for the out-of-phase condition alone, the mean percentage was 28% for normals, 43% for stutterers, 57% for neurotics, and 69% for hemiplegics. For the in-phase condition, the mean was 38% for normals, 49% for stutterers, 51% for neurotics, and 71% for hemiplegics.

There was increasing consistency noted with increasing intensity of the stimulus. The mean percentages for the groups at 15 and 30 db., as recorded in Table 1, demonstrates this clearly. At 15 db. the mean for normals was 37%; for stutterers it was 46%; for neurotics it was 58%, and for hemiplegics it was 71%. At 30 db. the mean percentages were as follows: 28% for normals, 46% for stutterers, 50% for neurotics, and 69% for hemiplegics.

Finally, the mean percentage of consistency of utilizing both intensity and phase as determinants was computed. Table 1 shows that essentially the same pattern is found as before; i.e., the normals are most consistent, followed, in order, by the stutterers, the neurotics, and the hemiplegics. This order is violated in only one instance. This was at 30 db., when the tone was presented in phase. Under this condition, normals are first in terms of consistency; the neurotics are second; stutterers are third, and hemiplegics are fourth.

Differences appear between consistency of responses to binaural and monaural stimuli. All groups show more consistency to monaural stimulation, with the normal group continuing to be the most consistent. However, differences in the relative consistency of the other groups now appear. The consistency score for all monaural stimuli—both right and left ears—was 13% for normals, 23% for neurotics, 27% for stutterers, and 31% for hemiplegics, as reported in Table 2. When right and left ears at 15 and 30 db. are compared on this basis, the results show considerable variation in relative rank for all groups except the normals. When the intensity level is used as the only criterion, Table 2 shows an improvement for all groups except the stutterers at 30 db. The most marked recovery for the four groups at this greater

TABLE 2.—*Mean ($\overline{X}$) Percentage Scores of Consistency for Monaural Stimulation for the Total Group and Subgroups* *

	Over-All $\overline{X}$ %	15 Db. $\overline{X}$ %	30 Db. $\overline{X}$ %	15 Db. R $\overline{X}$ %	30 Db. R $\overline{X}$ %	15 Db. L $\overline{X}$ %	30 Db. L $\overline{X}$ %
Normals	13	15	11	13	10	15	12
Stutterers	27	26	28	25	25	27	32
Neurotics	23	27	19	30	17	23	22
Hemiplegics	31	43	20	34	24	52	15

* The level above threshold at which auditory stimulation is presented is indicated by the symbols 15 db. and 30 db.

TABLE 3.—*Distribution of Localization Responses to Binaural Stimulation Presented Out of Phase at 15 and 30 Db. Above Each Subject's Threshold* **

	500 B— 15			1K B— 15			2K B— 15			500 B— 30			1K B— 30			2K B— 30		
	H	E	D	H	E	D	H	E	D	H	E	D	H	E	D	H	E	D
Normals	49	9	2	45	15	0	36	24	9	50	10	0	43	17	0	39	21	0
Neurotics	30	19	11	22	31	7	20	35	5	34	12	14	32	23	5	31	24	5
Stutterers	32	12	16	27	19	14	16	30	14	37	12	11	32	13	15	32	10	18
Hemiplegics	13	6	2	9	8	4	13	8	0	15	5	1	10	6	5	14	6	1

* Responses localized to head=H; responses localized to either ear=E, and responses localized other than to the head or ears are called displaced (D).

TABLE 4.—*Distribution of Localization Responses to Binaural Stimulation Presented in Phase at 15 and 30 db Above Each Subject's Threshold* *

	500 B+ 15			1K B+ 15			2K B+ 15			500 B+ 30			1K B+ 30			2KB + 30		
	H	E	D	H	E	D	H	E	D	H	E	D	H	E	D	H	E	D
Normals	24	35	1	32	28	0	36	24	0	28	32	0	27	33	0	35	25	0
Neurotics	14	38	8	15	39	6	20	34	6	20	39	1	25	33	2	27	24	9
Stutterers	9	35	16	14	33	13	22	27	12	16	32	17	28	18	14	27	18	15
Hemiplegics	4	17	0	11	9	0	11	5	5	6	8	7	10	8	3	13	8	0

* Responses localized to head=H; responses localized to either ear=E, and responses localized other than to the head or ears are called displaced (D).

TABLE 5.—*Distribution of Localization Responses to Monaural Stimulation Presented to the Right Ear of Each Subject at 15 and 30 db. Above Their Threshold* *

	500 R 15			1K R 15			2K R 15			500 R 30			1K R 30			2K R 30		
	H	E	D	H	E	D	H	E	D	H	E	D	H	E	D	H	E	D
Normals	1	59	0	3	57	0	2	58	0	3	57	0	10	50	0	1	59	0
Neurotics	2	57	1	6	54	0	1	54	5	6	54	0	0	56	4	2	57	1
Stutterers	1	53	6	1	52	7	0	51	9	1	52	7	0	51	9	1	53	6
Hemiplegics	0	15	6	0	21	0	0	15	6	0	21	0	0	14	3	0	15	6

* Responses localized to head=H; responses localized to either ear=E, and responses localized other than to the head or ears are called displaced (D).

TABLE 6.—*Distribution of Localization Responses to Monaural Stimulation Presented to the Left Ear of Each Subject at 15 and 30 Db. Above Their Threshold* *

	500 L 15			1K L 15			2K L 15			500 L 30			1K L 30			2K L 30		
	H	E	D	H	E	D	H	E	D	H	E	D	H	E	D	H	E	D
Normals	0	60	0	5	55	0	6	54	0	3	57	0	1	59	0	1	59	0
Neurotics	4	56	0	6	49	5	2	56	2	1	55	4	5	42	3	1	44	5
Stutterers	2	50	8	2	47	11	1	50	9	3	41	6	5	48	7	4	52	4
Hemiplegics	0	19	2	4	15	2	1	16	4	2	19	0	3	18	0	2	16	3

* Responses localized to head=H; responses localized to either ear=E, and responses localized other than to the head or ears are called displaced (D).

intensity occurred with the hemiplegics, whose score was reduced from 43% to 20%.

The variance among the groups in terms of consistency of response to both binaural and monaural stimuli would seem to indicate that localization of sound is an extremely complex task. The relatively better showing of the normals was expected. The other extreme noted among the hemiplegics may simply be an artifact of the small group. Finally, it would seem significant that the rank order of consistency remains constant in all but one of the nine binaural conditions in which it is computed. The variance noted under monaural stimuli is indeed surprising and gives further evidence of the inconsistency of this type of perception.

Frequency of Responses.—The numerous patterns of responses indicated by the data made statistical analysis impossible. The meaning of the various patterns which could be given by a person has not yet been demonstrated. Thus, the subject who localizes a sound first to his head, then his ear, and then displaced outside his head cannot be compared in terms of the present data with a person who perceives the same stimulus in a reversed order.

However, in terms of a simple frequency count, several observations can be made. Table 3, which gives the breakdown of responses at 15 and 30 db. for stimuli presented binaurally out of phase, clearly shows more head responses in the normal group than in the neurotic and stuttering groups. On the average, more displaced responses seem to occur in the stuttering group and more ear responses in the neurotic group. Although the number of responses is not the same in the hemiplegic group, the majority of responses appear to be head responses. The over-all frequency pattern thus corresponds most closely to that evinced by the normals.

When the binaural stimulus was presented in phase at 15 and 30 db. above threshold, the normal subjects again gave more head responses under nearly all conditions, the neurotics more ear responses, and the stutterers more displaced responses. These results, as tabulated in Table 4, are similar to those obtained from the binaural stimulus presented out of phase. More variability is evinced by the hemiplegic group in the in-phase than in the out-of-phase condition. This variability is most evident at 500 cps for both the 15 and the 30 db. condition.

Tables 5 and 6 present the frequencies observed under monaural conditions. The majority of responses for all groups are ear responses such as would be expected. The stutterers again demonstrate more displaced responses than the other groups. All four groups give a few head responses to the monaural stimulus, but only the normal group does not give a displaced response.

Summary

In this study, 67 subjects—20 stuttering children, 20 normal children, 20 emotionally disturbed children, and 7 hemiplegic children—were tested for their ability to localize sound. In general, it was found that there was a marked inconsistency in their response pattern, although normal children were the least inconsistent. Further, it was noted that in terms of frequency of responses to binaural stimuli, stutterers tended to give more displaced responses, normal children, more head responses, and neurotic children, more ear responses. Under monaural stimuli, the major difference in the four groups was in the greater number of displaced responses found among the stutterers. However, all groups tended to show some variance in responses—sometimes suggesting they heard it in the head, sometimes in the ears, and sometimes outside the head. The results in general suggest the need for extensive reevaluation of our earlier concepts regarding localization and of their possible neurological implications.

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Serotonin (5-Hydroxytryptamine) and Acetylcholine in Human Ventricular and Spinal Fluids

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In 1953 Gaddum[1] discovered the hallucinogenic agent lysergic acid diethylamide (LSD-25) to be a powerful in vitro antagonist of serotonin, and he offered the hypothesis that normal central nervous system function is related to, or dependent upon normal serotonin content of the central nervous system. In 1954 Woolley and Shaw,[2,3] postulating that abnormal central nervous system function could be associated with either a deficiency or an excess of serotonin, formulated a theory of schizophrenigenesis based upon the antagonism (and, later, the similarities[4]) between LSD-25 and serotonin. These authors suggested that determination of serotonin levels in spinal fluids would be highly valuable. The work here reported derives from this suggestion.

Inasmuch as acetylcholine-cholinesterase imbalance has been implicated in schizophrenia and manic-depressive psychosis,[5,6] acetylcholine levels were also measured. Despite the tremendous interest in acetylcholine over a period of many years, reference to its presence in cerebrospinal fluid has generally been qualitative only; the sense of most of the published work has been that acetylcholine appears in cerebrospinal fluid only after brain injury or trauma,[7-10] although Poloni[11] reported its presence in the cerebrospinal fluid of normal subjects and its absence from that of schizophrenic subjects. There is one recent report[14] of quantitative acetylcholine determination in cerebrospinal fluids from patients with head injuries and brain tumors. It has never been proved that acetylcholine really exists in the spinal fluid. Its existence is assumed on the basis of biological tests, which test for related quarternary ammonium compounds as well. We should, perhaps, speak only of acetylcholine-like substance(s). Our readers will be asked to bear in mind the present state of uncertainty in this connection.

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Materials

The 15 ventricular fluids examined were obtained during operations or diagnostic procedures on patients with the following conditions: brain tumor, cerebroarteriosclerosis, Huntington's chorea, idiopathic epilepsy (long-standing), Parkinsonism (postencephalitic), meningoencephalitis residuals (unknown etiology), schizophrenia, Pick's disease, Still's disease (this patient had previously been lobotomized for relief of pain of arthritis), torticollis, and hydrocephalus.

The 44 spinal fluids were obtained from patients with the following conditions: syphilis of the central nervous system, acute alcoholic hallucinosis, recent cerebral trauma (without hemorrhage), meningoencephalitis, alcoholic deterioration, headache, schizophrenia, involutional melancholia, and psychoneurosis.

Methods

Collected fluids were frozen promptly (exceptions will be referred to below) and maintained at —10 C until tested.

The isolated heart of the clam, Venus mercenaria, was used for bioassay of serotonin and acetylcholine.[15,16] The Venus heart is sensitive to concentrations of serotonin as low as 0.0002μg/ml. of sea-water bath, to which it responds with increased amplitude of contraction, and to concentration of acetylcholine as low as 0.00002μg/ml., to which it responds with decreased amplitude and rate of contraction. The specific blocking actions of 2-bromo-*d*-lysergic acid diethylamide (BOL) on serotonin[17] and of benzoquinonium (Mytolon)

TABLE 1.—*Serotonin and Acetylcholine in Spinal Fluids*

Diagnosis	Classification	Serotonin, μg/Ml.	Acetylcholine, μg/Ml.
Parkinsonism	1. Org. *	I †	0
Epilepsy	1. Nonpsych.	0	<0.01
	2. Nonpsych.	0	<0.01
	3. Nonpsych.	0	0.003
	4. Nonpsych.	0.006	0.002
	5. Nonpsych.	0	0.0005
	6. Nonpsych.	0	I ‡
	7. Nonpsych.	I †	0
	8. Nonpsych.	0.012	NT §
Cerebroarteriosclerosis	1. Org. *	0.006	0 ‖
	2. Org. *	0.004	0.001
	3. Org. *	>0.002	0.0005
	4. Org. *	0	0
	5. Org. *	0	0
	6. Org. *	0	0.01
	7. Org. *	0	0.01
Meningoencephalitis	1. Org. *	I ¶	0
Psychoneurosis	1. Nonpsych.	0.002	0.01
	2. Nonpsych.	0	0.001
Syphilis of the CNS	1. Org. *	0	0.015
	2. Org. *	0	0
	3. Org. *	0 #	0
	4. Org. *	0	0.003
Senility	1. Org. *	0	0.015
	2. Org. *	0	I ‡
Alcoholism			
Chronic residuals	1. Psych.	0	0.002
	2. Org.	0	0.008
Acute hallucinatory	1. Psych. **	0	0
	2. Psych.	0	0.001
Headache	1. Nonpsych.	0.0006	0.0002
Schizophrenia	1. Psych.	0.0012	0.0002
	2. Psych.	0 #	0
	3. Psych.	0 #	I ‡
	4. Psych.	0 #	0
	5. Psych.	0.01	0
	6. Psych.	0.02	0.01
	7. Psych.	I ††	0
	8. Psych.	0	0
	9. Psych.	0	0
	10. Psych.	0.004	NT §
	11. Psych.	0	0
Mental deficiency	1. Psych.	0 ‡‡	0
Involutional melancholia	1. Psych.	0 ‡‡	0
Trauma: loss of consciousness	1. Nonpsych.	0 #	0

* Organic brain disease with psychosis.

† Tests inconclusive or inconsistent; amplified response caused by test fluid in sea water, or by serotonin in test fluid and sea water, continued to appear in presence of BOL.

‡ Tests inconclusive or inconsistent.

§ Not tested.

‖ Not tested in presence of BOL, therefore possible false-negative result.

¶ Amplified response caused by test fluid in sea water, or by serotonin in test fluid and sea water, continued to appear in presence of BOL; amplified response caused by test fluid in sea water failed to appear after addition of benzoquinonuim (Mytolon) to bath.

Inhibition caused by test fluid in sea water, continued to appear in presence of benzoquinonium

** Psychosis, apparently functional.

†† Inhibition caused by test fluid in sea water, continued to appear in presence of benzoquinonium amplified response caused by test fluid in sea water, or by serotonin in test fluid and sea water, continued to appear in presence of BOL.

‡‡ No change in clam-heart contraction caused by test fluid in sea water; slight inhibition in presence of Mytolon.

chloride on acetylcholine[18] were utilized to confirm identification of these substances when they were present and to prevent either one from masking the effects of the other when both were present in one test fluid. Most of the ventricular fluids were also assayed by rabbit ear blood vessel test,[19] and many of the fluids that were positive for acetylcholine were tested on atropinized rabbit intestine. In general, two methods of assay gave similar results, exceptions having been noted in Table 1.

A few of the collected fluids were kept in the operating room for as long as 30 minutes before being refrigerated or frozen. Accordingly, numerous tests were run on known solutions of acetylcholine and serotonin in distilled water and in sea water to determine the effects of exposure to room temperature and of very prolonged freezing. We found that freezing for as long as two years did not affect the test fluids or the control solutions (beyond the variation inherent in the method of assay), and that standing at room temperature up to five hours did not alter the serotonin content of test fluids or control solutions. Control solutions of acetylcholine were stable at room temperature, but the apparent acetylcholine of two test fluids with extremely low concentrations (below 0.0003μg/ml.) either increased slightly or decreased below detectable levels during a five-hour period at room temperature.

Results

Our results are summarized in Tables 1 and 2. The concentrations listed in the tables are the averages of figures obtained from several tests, occasionally on more than one sample from the same patient.

Of the 15 ventricular fluids, 8 were positive for serotonin, 11 for acetylcholine, and 5 for both. Of the 44 spinal fluids, 9 were positive for serotonin, 20 (of the 42 tested) for acetylcholine, and 7 for both.

With the exception of one schizophrenic subject whose ventricular-fluid serotonin level was 0.20μg/ml., serotonin and acetylcholine levels of all the positive fluids were 0.03μg/ml., respectively, or far lower. Averages for positive ventricular fluids are 0.012μg/ml. of serotonin and 0.006μg/ml. of acetylcholine; for spinal fluids the averages are 0.006μg/ml. of serotonin and 0.0056μg/ml. of acetylcholine.

One-fourth of the spinal fluids in our series exhibited effects on the clam heart that were attributable to neither serotonin nor acetylcholine. These are noted in Table 1 and are as follows: Two fluids caused no change in clam-heart response when added to the sea-water bath but did cause slight inhibition when the bath contained benzoquinonium. Perhaps related to these was one fluid which produced an amplified response of the heart when added to sea water but caused no change when the bath contained benzoquinonium. Six fluids produced acetylcholine-like inhibition of the heart on addition to the bath, but the inhibition was not abolished by benzoquinonium. Finally, four of the spinal fluids seemed to contain a substance that inactivated BOL, since the characteristic, amplified response of the clam heart to serotonin continued to appear, even in the presence of BOL, when these fluids were added to the bath. None of these unexplained responses were elicited by any of the ventricular fluids.

TABLE 2.—*Serotonin and Acetylcholine in Ventricular Fluids*

Diagnosis	Classification	Serotonin, μg/Ml.	Acetylcholine μg/Ml.
Brain tumor	1. Org. *	0	0.0005
	2. Org. *	0.004 †	0.0005
Hydrocephalus (infant)	1. Org. *	0	0.0004
Parkinsonism	1. Org. *	0	0.0003
	2. Org. ‡	0	0.0003
Huntington's chorea	1. Org. ‡	0	+(0.00002)
Still's disease and schizophrenia	1. Psych.	I §	0
Epilepsy	1. Nonpsych.	0.001 †	0 ‖
Meningoencephalitis	1. Org. ‡	0	0.01
Cerebroarteriosclerosis	1. Org. ‡	0.03	0.02
	2. Org. ‡	0.02	0.02
Pick's disease	1. Org. ‡	0.002 †	0 ‖
Schizophrenia	1. Psych.	0.01	0.012
	2. Psych.	0.2	0.001
Torticollis	1. Org. *	0.02	0

* Organic brain disease without psychosis.
† Positive in rabbit ear assay; negative in clam heart assay.
‡ Organic heart disease with psychosis.
§ Test inconclusive or inconsistent.
‖ Not tested in presence of BOL; therefore possible false-negative response.

When data on the spinal fluids of patients with psychosis (whether of organic or of functional nature) are compared with one another or with the fluids of those patients without psychosis, we find no difference with respect to the occurrence or concentration of serotonin or acetylcholine. Our data on ventricular fluid in schizophrenics is limited to two subjects, despite efforts over a three-year period to secure more.

Comment

A large number of agents with physiological action on the rat uterus, guinea pig ileum, leech muscle and heart, etc., have been reported in spinal fluids. Among these are histamine-like compounds,[20] trimethylamine and a curariform substance.[11-13] Acetylcholine and serotonin in the spinal fluid have been described by Sachs,[14] who also reported a response of the clam heart which could not be due to either of these substances, but was ascribed to an unknown substance, X. One of our unknowns resembled Substance X in that it caused diminution of clam-heart contraction which was not abolished by benzoquinonium. Our substance, however, did not cause the increased rate of contraction described by Sachs.

The one patient who had the very high concentration of serotonin was a woman with catatonic schizophrenia from whom ventricular fluid was obtained at the time of a lobotomy, when she was 33 years old. She had no family history of psychosis, had apparently been a healthy, likable person, was married and had a child, with no complications prior to her illness. Apparently, the mother had enhanced sibling rivalry and would torment the patient by solicitude for the patient's sisters. The psychosis seemed to develop when the patient's husband made a favorable comment regarding some other woman. After the first hospitalization, when she had improved, been discharged, and had another baby, a second episode was precipitated by a similar incident. With repeated hospitalizations, each admission was accompanied by more catatonic manifestations, with increasingly violent behavior. She had much electric shock treatment and several courses of insulin coma, each of which was followed by symptomatic improvement for a short while. Chlorpromazine seemed to be temporarily effective. At present, the patient has been out of the hospital for the last 10 months.

With this one exception, the difference in average serotonin levels between those ventricular and those spinal fluids which were positive for serotonin was well within the limits of experimental error of the methods used. The concentration of serotonin in paraventricular tissue has been reported to be about 0.05μg/gm.-0.1μg/gm. of tissue.[21,22] The possibility must be considered that most of the serotonin liberated from fixation in the cells is oxidized to 5-hydroxylindoleacetic acid before the molecule leaves the cell.

The relationship between serotonin levels in the brain and mental illness apparently cannot be judged by spinal fluid determinations, nor can spinal fluid determinations be used diagnostically. Our data do not lend any support to the reports of Fiamberti [5] and Poloni [11] that there is a specific absence of acetylcholine in the spinal fluid of psychotic persons.

Summary

The serotonin and acetylcholine levels of ventricular and spinal fluids from subjects with schizophrenia and with a variety of neurological and neurosurgical conditions regularly lie below 0.03μg/ml. and 0.02μg/ml., respectively. In one catatonic schizophrenic the ventricular-fluid serotonin content was 0.20μg/ml. There was no difference of any significance between fluids from a control group of subjects and those from psychotic patients. The presence of physiologically active, still unidentified substances in ventricular and spinal fluids is highly probable.

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Comparison of Sernyl with Other Drugs

Simulation of Schizophrenic Performance with Sernyl, LSD-25, and Amobarbital (Amytal) Sodium; I. Attention, Motor Function, and Proprioception

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Study of the pathological mechanisms implicated in schizophrenia has recently been accelerated by the production of model psychoses through the use of psychotomimetic drugs. Our laboratories have previously reported[6] psychotomimetic effects with Sernyl, 1-(1-phenylcyclohexyl) piperidine monohydrochloride. This drug is one of a class of new chemical compounds which function as sensory blocking agents, with anesthetic and sedative properties. It was found to produce severe disturbances in body image, affect, attention, and thinking which closely approximated the primary symptoms of schizophrenia. Depersonalization, feelings of isolation and estrangement, concreteness, hypnagogic states, and repetitive motor behavior occurred in patients following intravenous infusion of this drug.

The present studies were conducted in an attempt to isolate the mechanism responsible for the effects of Sernyl and its relevance to the psychopathology of schizophrenia. A number of psychological functions characteristically associated with the primary pathology of schizophrenia were systematically evaluated in schizophrenic patients and in normal subjects receiving Sernyl and other drugs. This report presents comparative data on the relative effectiveness of Sernyl, lysergic acid diethylamide (LSD-25), and amobarbital (Amytal) sodium in simulating attention and motor deficits characteristically found in schizophrenia. Additional data are reported showing the effects of schizophrenia and of these drugs on proprioception. It is hypothesized that blocking of the proprioceptive inputs required for normal behavioral integration may be the pathological mechanism mediating impairments found in schizophrenia and those produced by Sernyl.

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The authors wish to express their gratitude to Parke, Davis & Company for supplying the Sernyl used in this study and subsidizing the normal controls.

Method

Experimental Design.—Ten chronic schizophrenic patients with illnesses of at least three years' duration were compared with three groups of normal subjects. Of these normal subjects, 10 later received Sernyl; 10 received LSD-25, and 5 received amobarbital sodium. All subjects were tested on a battery which included measures of attention (reaction time), motor function (rotary pursuit), and proprioceptive acuity (weight discrimination). LSD-25 was used to permit comparison of Sernyl with a well-known psychotomimetic drug. The amobarbital sodium group provided a control index for the sedative effects of Sernyl. All normal subjects were pretested before drug administration to provide a base line against which the drug effects could be evaluated. Schizophrenic patients were tested only without drugs. This design permitted comparisons of the relative effects of the three drugs and the extent to which performance under each drug simulated schizophrenic performance.

Administration of Drugs.—Sernyl was administered intravenously in a subanesthetic dose of 0.1 mg. per kilogram in 150 cc. of 5% dextrose over a period of 12 minutes. One microgram of LSD-25 in 50 cc. of water per kg. of body weight was administered orally. An average dose of 500 mg. of amobarbital sodium and 15 mg. of amphetamine sulfate mixed in a 21 cc. solution was administered intravenously to the point of slurring of speech and lateral nystagmus. The test battery was begun immediately following injection for the Sernyl and amobarbital groups and three hours

following injection for the LSD-25 group, at the height of the LSD-25 reaction.[12] The dosages of the comparative drugs were based on an attempt to produce maximum sedative and psychotomimetic effects without profound disturbance in consciousness.

Testing Procedure.—The postdrug test battery was administered to the normal subjects two to four hours following the pretest battery. The administration of the predrug test battery required one hour, while the postdrug battery required one to two hours. Schizophrenic subjects usually required one to two hours to complete the battery, which they received only once without drugs. The complete battery contained a number of tests of thinking functions and questionnaires designed to evaluate subjective reactions to the drugs. The total battery included six psychological tests presented serially so that the weight-discrimination test occurred fourth, the reaction-time test fifth, and the rotary-pursuit task sixth. In the postdrug test sequence, these tests occurred 30, 60, and 75 minutes after the onset of testing.

Measurement of Attention.—A modification of the reaction-time technique previously employed by Huston and Senf [4] for measuring deficits in level and maintenance of attention in schizophrenia was used in the present study. The reaction-time apparatus employed has been described elsewhere.[9] Subjects were required to release a telegraph key at the sound of a buzzer following a 10-second preparatory interval. All subjects were given 20 reaction-time trials. On the first 10 trials, subjects were socially motivated by instructions to react as rapidly as possible, whereas the last 10 trials were biologically motivated by a 50-volt shock to the reacting finger accompanying the buzzer signal to react. Median reaction times obtained on the first and last 10 trials served as measures of attention under the two conditions of motivation.

Measurement of Motor Function.—A rotary-pursuit task was employed to evaluate motor performance. This task has previously been used to show that schizophrenic patients perform below the level of manic-depressive and normal subjects, both in initial level of motor functioning and in improvement with practice.[6] The apparatus was a Lafayette Instrument Co. Pursuit Rotor. The task requires the subject to keep a prod-stylus in contact with a small metallic target, set in a phonograph-type disk, revolving at 60 rpm. Score on a given trial is the total time on target during a 20-second period, the trial being followed immediately by 20 seconds of rest. In order to assess several attributes of motor performance, the complete motor task consisted of 2 initial trials with the nonpreferred hand; then 10 trials with the preferred hand, interrupted by one min. of rest between the 5th and the 6th trial, and, finally, 2 additional trials with the nonpreferred hand. This procedure provided separate scores for total motor efficiency, motor learning, reminiscence effects, and bilateral transfer.

Measurement of Proprioception.—A weight-discrimination procedure was employed to measure proprioceptive acuity. The procedure was a modification of the method of constant stimuli, in which upper difference thresholds were obtained from a 44 gm. standard weight. Subjects received eight trials with each of four comparison weights of 52, 50, 48, and 46 gm., respectively, in that order. On each trial, subjects were required to "heft" the standard stimulus and comparison weight successively and to designate whether the first or the second weight was heavier. The order of presentation of the standard stimulus as the first or second weight was randomized within each block of eight trials. The time requirements of the total test battery precluded obtaining difference thresholds in more than one direction. The present procedure proved satisfactory for obtaining reasonably stable thresholds over a wide-enough range of stimuli to reflect individual changes in proprioceptive acuity.

Results

Reaction Time (RT).—The effects of schizophrenia and the three drugs on attention are shown in the RT data, presented as Figure 1. The upper portion of the Figure shows the medians obtained from the four groups under ordinary social motivation to react without shock. Inspection of the Figure and analysis of variance of these data indicate that the nonshock RT scores of the schizophrenic group were significantly slower ($P<0.001$) than those for the three normal groups prior to drug administration. With drugs, as shown in the solid bars on

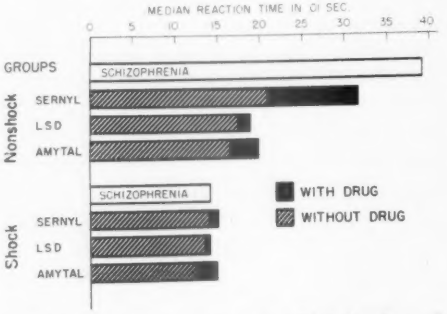

Fig. 1.—Reaction times of schizophrenic and drug groups under shock and nonshock conditions.

the figure, the Serynl, LSD-25, and amobarbital groups differed significantly ($P<0.05$). Separate *t*-tests revealed that this difference was attributable to a marked slowing of the Sernvl group RT's ($P<0.01$). In addition, there was no significant difference between the schizophrenic and the drugged Sernyl subjects in nonshock RT's, while the RT's of the other two drug groups were significantly faster than those of the schizophrenic group.

Analysis of the shock RT's, presented in the lower portion of Figure 1, showed no significant differences among any of the four groups, with or without drugs. This finding is in keeping with previous results [10] showing that characteristic disturbances in schizophrenic reaction time can be eliminated under shock motivation. The similarity in the nature of the attention deficits produced by Sernyl and schizophrenia is clearly reflected in the fact that the slowing of RT produced by Sernyl was likewise eliminated with shock stimulation.

In striking contrast to the schizophrenomimetic effects of Sernyl, LSD-25 produced no significant changes from the predrug level in either shock or nonshock reaction time. Amobarbital produced a significant slowing of RT under both the shock ($P<0.05$) and the nonshock ($P<0.05$) condition, but the disturbance in nonshock RT never approached the schizophrenic level. Thus, amobarbital sedation appears to result in mildly reduced reactivity to both biological and social motivation, while Sernyl and schizophrenia produced marked disturbances in attention under social motivation and normal maintenance of attention with shock motivation.

Rotary Pursuit.—The motor performance of the four groups with and without drugs is presented in Figure 2. The trials with the nonpreferred hand are not presented, as these data did not show clear bilateral transfer effects and were too variable to be systematically related to schizophrenia or any of the drug conditions. The rise from the fifth to the sixth trials indicates that

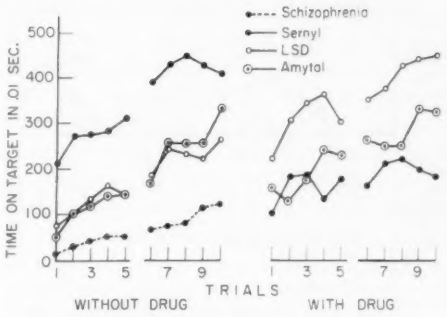

Fig. 2.—Rotary-pursuit learning of schizophrenic and drug groups.

most groups showed characteristic reminiscence effects. However, the individual reminiscence scores proved to be extremely variable and unrelated to schizophrenia or drug effects.

The principal objectives in analyzing the rotary pursuit data were (*a*) to confirm previous findings that schizophrenic patients show a deficit in level of motor proficiency and in improvement with practice, and (*b*) to determine whether any of the drugs would simulate schizophrenic deficits in motor function. Examination of Figure 2 clearly indicates that prior to drug administration the schizophrenic group showed poorer rotary-pursuit scores than the other three groups. Statistical analyses of these data, utilizing all 14 rotary-pursuit trials with both hands, indicated that without drugs the four groups were significantly different ($P<0.01$). While this difference was largely attributable to the poorer performance of the schizophrenic group, further analysis revealed that the subjects who later received Sernyl were significantly better than the other two normal groups ($P<0.01$). Since the subjects in the three drug groups were selected at random, this initial difference in motor function among the three normal groups appears to be the result of a sampling artifact.

When these three groups are compared after drug administration, the differential effects of the drugs are clearly apparent. The Sernyl subjects showed a significant

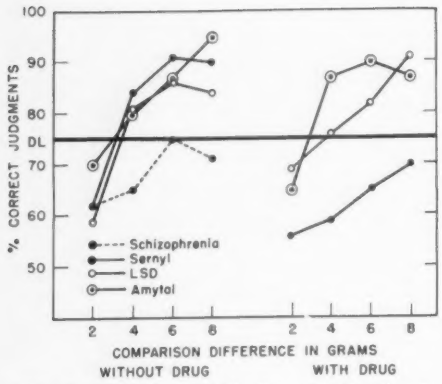

Fig. 3.—Weight discrimination of schizophrenic and drug groups.

drop in performance from their predrug level ($P<0.01$), approaching the level of the schizophrenic group. The amobarbital subjects continued to function at a level approximating their predrug performance. The LSD-25 subjects showed a significant acceleration of their motor learning curve ($P<0.01$), which rises well above the predrug level.

In general, the schizophrenic patients showed a lower level of motor proficiency and little improvement with practice. Sernyl produced a decline in motor function which closely approximated the flat motor-learning curve of the schizophrenic patients. Amobarbital resulted in no significant change in motor function, while LSD-25 produced significant improvement and acceleration of motor learning.

Weight Discrimination.—The weight-discrimination curves presented in Figure 3 are compatible with the hypothesized deficit in proprioceptive acuity both in chronic schizophrenia and in normal subjects under Sernyl. Examination of the Figure indicates that the upper difference limen (75% correct judgments) was reached within 4 gm. by each of the three normal groups without drugs. On the other hand, the estimated difference limen was 9.48 gm. for the schizophrenic group and 10.46 gm. for the normal subjects under Sernyl. Statistical analyses of these data showed that the schizophrenic group and the Sernyl group with drug differed significantly ($P<0.001$) from the other drug groups, but did not differ from each other.

Comment

The present results demonstrate the capacity of Sernyl to simulate in several significant details the symptomatology characteristically found in schizophrenia. This new compound, like LSD-25, produces a model psychosis resembling schizophrenia, in that subjects are able to communicate sensory experiences and bodily sensations despite the occurrence of hallucinatory and delusional sequelae. In the dosages used, neither drug results in the typical disorientative, amnesic delirium syndrome usually found in toxic states. Unlike LSD-25, Sernyl results in schizophrenic-like impairments of primary attention and motor functions, in addition to the secondary symptoms of depersonalization, subjective disorganization, and hallucination found with other psychomimetics.

The present findings indicate that both schizophrenics and normal subjects receiving Sernyl showed abnormally slow reaction times under social motivation and a deficit in the level and amount of motor learning. These results cannot be attributed solely to the hallucinogenic or sedative properties of Sernyl, since other drugs with each of these properties failed to simulate these schizophrenic impairments. Sedation with amobarbital resulted in a generalized reduction of attention and motor efficiency, but the resulting impairment did not exhibit the characteristic features of schizophrenia and was considerably less extensive. Similarly, the hallucinogen, LSD-25, failed to affect reaction-time measures of attention and appears to have benefited motor learning.

The possibility that the underlying pathological mechanisms common to schizophrenia and the Serynl-produced state is a disturbance in proprioception was supported by the weight-discrimination data. Neurological findings [8] that Sernyl produces demonstrable

impairment in proprioception, pain, and touch add further credence to this hypothesis. It has also been suggested in a previous paper [6] that the body-image disturbance typically found with schizophrenia and Sernyl may be a direct reflection of disturbances in proprioception.

While these data suggest that the proprioceptive deficit produced by Sernyl may also be present in schizophrenia, the nature of the performance deficits obtained is also consonant with a social-learning theory of schizophrenia. In a previous study, Rosenbaum, Mackavey, and Grisell [10] have shown that schizophrenic disturbances in attention on a reaction-time task performed under social motivation can be eliminated by the arousal of biological-pain motivation. Similarly, Cohen [2] and Huston and Shakow [5] have shown that defective motor learning in the chronic schizophrenic patient may be attributable to poor social cooperation and insufficient drive arousal. The present results confirm these previous findings on the nature of the performance deficit in schizophrenia, but indicate further that Sernyl produces an almost identical deficit in these performance functions.

If schizophrenia is conceptualized as the end-product of a long-term process of social disarticulation, as suggested in the theories of Cameron [1] and Sullivan,[12] how could a drug like Sernyl have produced immediate effects closely simulating the primary pathology of this illness? Our findings on the effects of Sernyl suggest that it tends to block and disorganize the basic proprioceptive mechanism through which social meanings and motives are normally integrated. This formulation means, in effect, that the acquisition of social motives ordinarily requires the development of habitual acts and thoughts which elicit response-produced proprioceptive stimuli, serving, in turn, to energize and direct appropriate social behavior. These stimuli, arising from the feedback of motor, linguistic, and perceptual reactions, presumably serve as the locus of socially shared meanings and provide the motivation for effective interpersonal communication.* Disturbances in this system of socially acquired meanings and motives could then result either (*a*) from inadequate social reinforcement of these mediating reactions in the social development of the schizophrenic or (*b*) from the direct action of Sernyl on the proprioceptive mechanism.

An alternative formulation of the process of social disarticulation in the schizophrenic patient would assume that the proprioceptive deficit represents a primary biological defect, constitutionally or genetically based. Disturbance in the acquisition of social motives and meanings would then arise from physiologically determined distortions in the proprioceptive system.

The assumption that reduced proprioceptive stimulation results in the performance deficits found in schizophrenia suggests the additional possibility that increases in proprioceptive stimulation could reverse these effects. Techniques for directly modifying the amount and type of proprioceptive stimulation and its effects on performance and meaning in schizophrenic patients are currently being developed.

Summary

The performance of a group of chronic schizophrenic patients on attention (reaction time), motor function (rotary pursuit), and proprioception (weight discrimination) was compared with the corresponding functions of groups of normal subjects receiving Sernyl, lysergic acid diethylamide (LSD-25), and amobarbital (Amytal) respectively. Sernyl was the only one of the three drugs which produced disturbances in these functions approaching the deficit level shown by the schizophrenics. It is concluded that Sernyl results in schizophrenic-like impairments of primary attention and motor functions, whereas LSD-25 simulates only the secondary symptoms of schizophrenia. The data are interpreted as evidence for the

* This notion is further elaborated in personality theory by Dollard and Miller [4] and in the analysis of language and meaning by Osgood.[7]

hypothesis that disturbances in proprioception may be the pathological mechanism mediating impairments in performance and motivation found in schizophrenia and produced by Sernyl.

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Marriage and Divorce

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Two issues pertaining to marriage and divorce will be discussed in this article. The first concerns the conceptualization which provides the framework for a psychiatric point of view. After presenting the conceptualization which is currently popular, I shall suggest an alternate scheme. The second issue involves the relationship of the problem of marriage and divorce to our therapeutic endeavors.

Current Psychiatric Thinking on Marriage and Divorce

The current scheme is summarized in Table 1. It presupposes that there are normal and neurotic persons. Accordingly, a good and a stable marriage exists when two normal persons marry. This state is used as a point of anchorage, even though it remains undefined.

The second type of situation involves a normal and a neurotic partner. This combination was "found" more frequently in the days before characterological problems were sharply identified. For example, Freud [4] spoke of the woman who developed bodily symptoms on a psychological basis as suffering from a neurosis but said nothing about her husband, who treated her harshly and thereby presumably had something to do with her illness. Moreover, the social context (central Europe in the early 1900's) was not discussed. Today in America both husband and wife would undoubtedly be adjudged neurotic.

The third and fourth situations involve the marriage of neurotic partners. In the first of these a dovetail exists which makes the marriage workable; but, as viewed by the analyst, it is often less than desirable. The stability of this paired relationship may be maintained at what is presumed to be a price. For example, if sadomasochism is identified, the masochistic partner, usually the wife, is said to suffer at the hands of her mate. In addition, such a combination may *not* be regarded as stable. The reciprocal needs of husband and wife may shift, with a resultant dissolution of the marriage.

If two neurotic persons with a poor dovetail or matching of needs marry, the situation is usually difficult, from their standpoint, almost from the beginning. While the partners may remain together, perhaps in name only, divorce is a likely and frequent outcome.

In my opinion, this scheme has two major defects. The first is the assumption that normality exists or that a hypothetical state of normality provides us with a useful point of anchorage. Even assuming that there was such a thing as two normal per-

TABLE 1.—*Current Psychiatric Thinking on Marriage and Divorce*

Marriage Partnership	Type of Marriage	Treatment	Probable Social Outcome Without Treatment
Normal partners	Good	None	Stable marriage
One normal and one neurotic	Partly good	Neurotic partner only	Unstable marriage or divorce
Both neurotic but good dovetail	Workable but not good	None, one or both	Stable but at a price; change in dovetail might result in divorce
Both neurotic with bad dovetail	Bad	Both	Divorce likely

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sons, would this information tell us very much concerning the way in which they would live together? Not only might there be a failure of matching in terms of aspirations, values, etc., but there might be a poor fit in terms of emotional needs. Ackerman [1] implied this when he stated that to understand the marital relationship it was not enough to know about the neurosis of each partner. The opposite would seem to follow, namely, that it is not enough to know about the normality of each partner.

The second assumption is that there are neuroses. This idea clearly is a product of the medical origins of psychiatry and psychoanalysis and presupposes that so-called emotional or nervous disorders are illnesses in the same sense that acute lobar pneumonia and carcinoma are illnesses. It should be recalled in this connection that Freud maintained to the end of his life that one day a physical basis for all mental phenomena might be discovered.[6]

Moral and Medical Roots of Current Thinking on Marriage and Divorce

The scheme, which has been described, has two roots, which are usually concealed from view, or at least not thoroughly examined. The first is *moral*, and the second is *medical*.

The moral, or judgmental, quality is evident in the use of language. Such expressions as the "neurotic choice of a mate," the "emotionally immature partner," the "mature person," and the "neurotic who married" are 20th-century terms which label a person sinner or saint, bad or good. These purport to identify the cause of the trouble. That they do so is extremely unlikely. They simply cast light on the fact that the characterological make-up of one partner does not complement that of the other. An analogy might be drawn to the couplers on two miniature railroad trains. They may not fit together, but still neither is defective. This does not rule out the possibility that it may be unlikely, or even impossible, that some persons, as they are, will ever find a satisfactory match.

To pursue our examination of the analyst's viewpoint, let us take the following example: A woman, after five years of marriage, sues for divorce on the grounds that her husband is a philanderer. This story in newsprint would clearly mark the husband as the culprit. A psychiatric examination, however, might reveal that the wife provoked such behavior. As it has been aptly phrased, infidelity is usually the result, not the cause, of unhappy marriages. It might then be stated that the wife's "frigidity," or perhaps even her refusal to have sexual relationships, was responsible for her husband's philandering. At this point, she is held responsible, or perhaps they both are. But let us carry matters a step further. In the course of a more penetrating evaluation of husband and wife, it is learned that they both had a number of emotional problems in the sexual as well as other areas which may have played an important part in their selection of each other in the first place. So to speak, both were "neurotic"; both were "immature" and had unresolved problems which prompted them to make a "neurotic choice of a mate." Now who is to blame?

Bergler [3] expressed this view:

> If one listens to those who have made a failure of their marriages, one gains the impression that every divorced woman blames her husband and every divorced man blames his wife. The third and principal participant in every neurotic marriage, the neurosis which brought the couple together, in the first place, escapes detection.

It would follow from this that there are normal and neurotic forces which influence marriage and divorce. How do we differentiate them? What is neurotic? And what is normal? Since it has been said that all people have emotional problems, do we then mean that the identification of such problems in a person who seeks a divorce stamps him as neurotic or abnormal? Or do we set up the psychoanalyst as the judge who decides what is normal and what is neurotic? Here, obviously, what he learns (and to a considerable extent this depends on what the patient is willing to reveal to

him) and his own bias will be the determining factors. Do we not, by labeling this or that trait "neurotic," place ourselves in the position of the person who calls tardiness rebellion and promptness compulsiveness? Any form of human behavior can be labeled either good or bad, depending on the observer's attitude toward it. A man who works long hours may be regarded as a good provider, or he may be regarded as neglectful of his family, since he spends so many hours away from home.

Not only is the thesis propounded by Bergler,[3] and subscribed to by others as well, a code of morality, but it also fits into the conceptual framework of medicine. Neurosis is simply another way of saying that there is a pathological process in the personality. The concept that two normal (healthy, stable, flexible, etc.) persons will be happily married derives from the fact that a nondiseased liver will function well. While this way of viewing the functioning of body organs may be very useful, it cannot be meaningfully extended to encompass the complexities of human relationships. To present but one illustration: A nonoccluded bile duct is important to liver function, and hence to health (freedom from pain, absence of digestive disorders, etc.). There is a high consensus on this point. But what would the reaction be to a character trait like perfectionism? Here there would be little agreement. One husband (or wife) might like it and regard it as good. Another might take the opposite view. Moreover, liver function is considered in relationship to one's own body. Character traits must be viewed in relationship to another person. The way in which the second person will react depends, so to speak, on his (or her) own character traits.

Alternate Scheme for Viewing Marriage and Divorce

I should now like to propose an alternate scheme in which the terms normality and neurosis, and all they imply, would be deleted. For this purpose I would suggest that we speak of problems in living.[7] At first glance it might appear that one term is simply being substituted for another. This is not the case, however. Problems in living affect all persons, and not only some, as is implied by the term neurosis.* Moreover, the emphasis is unambiguously experiential and nonjudgmental.

TABLE 2.—*Alternate Scheme for Viewing Marriage and Divorce*

Marriage Partnership	Type of Marriage	Treatment	Probable Social Outcome Without Treatment
Reciprocal problems in living	Describe areas of complementation and disharmony	None	Stable as long as dovetail is maintained
Nonreciprocal (or clashing) problems in living	Describe areas of complementation and disharmony	One or both	Stormy course; marriage in name only or divorce

Table 2 depicts the state of affairs pertaining to marriage and divorce, using the viewpoint which I am suggesting. According to this scheme there are only two types of marital relationships. In one there are reciprocal problems in living, or a dovetail. In the other there are nonreciprocal, or clashing, problems in living. This is overdrawn for the purpose of setting it down in a schematic way. Obviously, in any partnership there will be some areas of complementation and others of disharmony.

To define the type of marriage, it is necessary to describe these areas and the nature of the complementation or disharmony. A marriage will be stable as long as a workable dovetail provides the prevailing climate for the relationship. Otherwise, the marriage will become stormy or dissolve. Another possibility is that the relationship may be nonreciprocal but without clashing. Husband and wife may simply live together with relatively little interchange of feelings. So to speak, they may move along parallel but noncommunicating

* There are those analysts who maintain that all people have neurotic conflicts, but this is to be differentiated from stating that all people are neurotic.

lines. They may not spend an appreciable amount of time together, even though they share the same house, and perhaps the same bedroom.

It is sometimes stated that one partner in a marriage *matures,* while the other does not. For example, a woman with many fears of men, especially in regard to sex, might choose a very nonassertive, even meek, man. After a few years she may become less fearful, and then long for a more assertive, even a more romantic, man. Divorce and remarriage may be the outcome. It would seem to me to be more accurate to state that she has *changed* rather than matured. Here, again, I am suggesting an operational rather than a judgmental viewpoint. Obviously, a dovetail is subject to change. Marital problems, and divorce, result from more marked changes in one partner than in the other.

In discussing marriage and divorce an additional factor should be considered. This factor is the value system of the participants. There is a profound difference, for example, between the outlook of a religious person of the middle economic class and the Hollywood star. It would seem that the former is intent on preserving a marriage, while the latter uses divorce as a primary means of resolving differences.

Therapeutic Considerations

In considering therapy, it must be decided whether the goal is to "repair" or to preserve a marriage or to approach problems without regard for their effects on the marriage. The former implies a marriage-focused orientation; the latter, a person-focused one.

The marriage, or family-focused approach, has been espoused by Ackerman,[2] among others. He stated:

> If one estimates . . . the assets and liabilities with regard to the mental health of a marital relationship, it begins to be possible to institute a realistic program of therapy. One may then erect goals for the psychotherapy of husband and wife in the context of a clear awareness of the reciprocity of the marital roles, rather than operating psychotherapeutically with an abstract goal of cure of neurosis in one individual partner, while giving insufficient attention to the features of the total marital relationship. . . . Adequate diagnosis of the marital relationship makes it possible not only to focus therapy on the damaged areas of functioning but also to reinforce and strengthen the relatively healthy areas of functioning and this tends to fortify the whole family relationship.

In marriage-focused therapy, the psychiatrist must decide what will be good or bad for the marriage. His goal then is not *primarily* to alter the patient's personal problems but, rather, to change his behavior in such a manner that there will be a better reciprocal marital relationship. This can be accomplished in a variety of ways, ranging from environmental manipulation to various forms of insight therapy. Within this frame of reference, the psychiatrist might point out emotional problems which seemingly produce difficulties in the patient's marital relationship, and then by implication (if not direction) enjoin him (or her) to do something about them. It should be stressed again that the psychiatrist in so doing attempts to alter the expression of (not necessarily resolve) those problems in living which interfere with a workable, reciprocal marriage relationship.

The therapist who functions to preserve a marriage should recognize that he is an agent (or at least a representative) of society and that he is espousing its value system. He may rationalize this stand by arguing that a marriage should be held together for the sake of children. (Conversely, having children has been "prescribed" as a way to hold a marriage together.) The psychiatrist obviously is free to elect whatever position he wishes to take. He should, however, be explicit about his stand both to himself and to his patients.

In the person-focused type of therapy, the patient's problems in living are dealt with without regard to the consequences in his (or her) marriage. Psychoanalysis or psychoanalytic psychotherapy, defined as a two-person situation, is possible only if treatment is person-oriented. A marriage, or family-focused, approach would preclude the very possibility of psychoanalysis.

While the subject of countertransference has been the topic of several recent articles, very little has been written concerning the effect of cultural bias on psychoanalytic practice. An analyst should strive to be aware of his cultural bias as much as he strives to be aware of his countertransference. Both can, and do, circumscribe his view and affect his relationship with his patient.

He should not allow himself to be dragged into the cultural trap and to reflect our current value system, as Kubie [5] did when he stated: "The psychoanalyst aims to save a marriage whenever this is humanly possible; the frequency of his success bears testimony both to his purpose and to his ability." Such a statement seems to be nothing more than an attempt to placate those who attack psychoanalysis as amoral. Kubie went on to state: "Where, however, he must choose between a patient's health and a patient's marriage, this issue must be squarely faced." I would immediately add that if he chooses the latter course, the relationship between psychiatrist and patient cannot be such that it would permit the form of treatment we know as psychoanalysis.

In person-oriented therapy, as is well known, the therapist can treat only one partner in a marriage. Moreover, if the other partner is in analysis with another analyst, there should be no communication between the two analysts. In marriage-oriented therapy, on the other hand, both partners can—and perhaps should—be treated by the same person. If two psychiatrists are treating marital partners, and share the goal of preserving the marriage, they obviously should communicate with one another and decide on a common course of action.

Summary

It seems to me that our current viewpoint in regard to problems which involve marriage and divorce is highly colored by cultural and moral standards. This influences both psychiatric (psychoanalytic) theory and therapy.

In this article, I have attempted to conceptualize the marital relationship in an operational manner. To do this it was necessary to drop the terms normal and neurotic † and to think in terms of problems in living.

If the psychiatrist or psychoanalyst chooses to work to save a marriage—and obviously this is his privilege—he should be candid, at least with himself, and face the fact that he is a representative of what he believes to be society's best interest, and not necessarily of the patient's best interest.

Psychoanalysis is possible, however, only if the focus is on the patient. A cultural bias, no less than countertransference, circumscribes the area open to scrutiny, and hence to change.

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† Psychotic disorders have been excluded from consideration in this article.

Psychoanalytic Formulations of Effects of Reserpine on Schizophrenic Organization

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On previous occasions the point was made that in psychopharmacological studies it is necessary to go beyond the gross clinical effects of a given drug and to determine the alteration in psychic structure concomitant with the drug administered.[1,2] Only through the determination of such changes would it be possible in the future to influence, more or less directly, the psychoanalytic or psychotherapeutic situations. These studies would necessarily involve intensive psychodynamic explorations of a very small number of patients and would lead to inferences not from statistical analysis but from longitudinal comprehension of each individual patient.

Such studies were previously reported in connection with the influence of Rauwolfia derivatives on dream formation and on schizophrenic dynamic structure.[1-4] The evidence from the latter study gave the impression that under Rauwolfia administration a partial shift from schizophrenic organization (or position) to manic-depressive organization (or position) may occur. The present project was undertaken of repeating the experiment in a different patient population, using a double-blind method, with phenobarbital as a placebo, in order to overcome one major variable, namely, the sedative and hypnotic effect of reserpine. The purpose was clearly not therapeutic, but to study the changes in psychic structure.

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Methodology

We shall discuss the methodology in some detail under three headings: patients; collection of observations, including psychological test data, and method and sectors of observations.

I. Patients.—Ten chronic schizophrenic male patients were selected for this study; they all had as their main clinical feature withdrawal, paucity of object relations, and the absence of overt restitutional symptoms. Their average age was 44.7 years, the youngest being 41 and the oldest 51 years old, and the average length of hospitalization was 18 years (the longest being 25 and the shortest 13 years). They all were and remained under the usual environmental conditions, i.e., nursing care, ward activities, and recreation, during the experiment.

II. Collection of Observations.—A double-blind regimen of drug administration was instituted, consisting of four periods of observation, each lasting four weeks. During the first and the last period no drug was administered, and during the second and third periods patients received reserpine or phenobarbital in random fashion, not all patients receiving the same drug at one time.

Phenobarbital was given in tablets identical with those of reserpine. The amount of phenobarbital was ½ grain (32 mg.), and that of reserpine 1 mg., in each tablet. Previous experiments had revealed that the optimum dose of reserpine for the production of change was from 6 to 10 mg. daily.

For this reason, and for the sake of uniformity, all patients were started with three tablets of medication (reserpine or phenobarbital) daily. This was increased to 10 tablets daily within 10 days, unless side-effects, such as drowsiness or incoordination, were too intense. In that case the medication was reduced to the level of tolerance.

Clinical observations were collected through twice-weekly interviews, which lasted from 20 to 45 minutes. At each session a sample of the patient's free associations was recorded to serve as a point of inference for the psychodynamic evaluation. The observers saw the patients separately, collected their data independently, and compared them at the end. One of the observers knew the time of period changes, but not their nature. The psychologist tested the patients independently, did a blind analysis of the data, and made it known at the conclusion of the experiment.

Psychological Testing Method: A test battery was administered four times to each of the 10 patients. The test battery consisted of a Rorschach and Figure Drawings. The periods of testing were spaced at four-week intervals, i.e., a pretest and three retests. The psychologist was unaware of the experimental set-up. The Rorschach test was administered in a modified form, which has been found more suitable for chronic psychotics, consisting of incorporation of the inquiry period into the initial administration. The Rorschach tests were scored by the Klopfer system. The Karen-Machover technique for administering and analyzing the Figure Drawings was used.

All the tests were scored and tabulated and rated as to the point where the maximum amount of "change" occurred in the four test series. The criteria were those of change, and not merely those of improvement in functioning. A three-point rating scale was used to evaluate the over-all findings of the Rorschach and Figure Drawings tests. Zero (0) stands for "no change"; 1, "slight change," and 2, "marked change." After this evaluation the psychologist was informed of the sequence of the two drug administrations, but not of their names. Statistical analysis was then made on the various Rorschach indices for each of the three retest periods. Tests for "*t*" and sign tests were computed for the various Rorschach variables, based upon the differences in the means for retest of the same subjects. The comparisons were made between (1) the no-drug period and the phenobarbital period; (2) the no-drug period and the reserpine period, and (3) the phenobarbital period and the reserpine period. χ^2-tests were used to evaluate the over-all content analysis of the Rorschach.

III. Method and Sectors of Observation.

Because the main purpose of the study was the detection of change, certain points of methodology were particularly emphasized. We shall discuss these points in some detail, because it seems that in investigating changes in psychodynamic states statistical analyses are not as yet applicable, the behavioral rating scales in their present form have limited value, and the need for a different approach to psychophysiological studies involving psychic structure (in a psychoanalytic sense) is worth considering. These points of methodology are as follows:

1. Three dimensions of psychic structure: ego, drives, and object relations (internal and external). This is a point of methodology in that it gives the directions along which the inferences were sought in clinical data.

2. Three sectors of observation from which to infer dimensions of psychic structure. (*a*) Organization of overt behavior, particularly in connection with the quantity of external object relations (the intensity of interpersonal relations) and its quality (the mode of interpersonal relations, i.e., hateful and destructive, or loving and constructive). (*b*) Organization of mood, consisting of four states: anxiety, depression, elation, and indifference. (*c*) Organization of thought, consisting of its formal aspect

(rate, logical consistency, etc.) and its content (including restitutional activities).

3. Three particularities of technique of interviewing: (*a*) encouragement of free associations; (*b*) refraining from interpretation and explanation, in order to keep unaltered as much as possible the natural unfolding of psychic processes; (*c*) introduction of two separate observers in order to minimize the vicissitudes of transference and countertransference phenomena, and independent psychological testings.

4. Three criteria of assessment of change: (*a*) Using the patient as his own control and relying upon the opinion of an observer with an adequate knowledge of the patient's inner world. It is felt that the opinion of such observers, as with any other psychopathological studies in humans, is the main reliable instrument of detection of change in studies involving psychic function. However, in many instances particularly involving rating scales, this opinion is based solely upon the overt behavior, which arbitrarily is given a number (a rating), and from then on an illusion of quantity is perpetuated.

It was thought that the margin of error would somewhat decrease if opinions of two therapists, with the same frame of reference and with similar knowledge of the patient's psychic state, were taken into account.

(*b*) Taking two closely related qualities of "emergence" and "incomprehensibility" as the only criteria indicating the possibility that a given event may be related to pharmacotherapy. A given event was taken to be "emergent" when it was incomprehensible to the observer in relation to what he knew about the reactivity and responsivity of the patient, and appeared discontinuous with the patient's evolving psychic processes. We feel that these two criteria are some of the few reliable indicators of a change due solely to the more or less specific effect of a substance on the organism, and are not related to the nonspecific effect of oral intake of a substance in the transference field. The determination of comprehensibility or incomprehensibility of an event is dependent exclusively upon the intimate knowledge that the observer has of the patient's inner world. This, of course, is subject to considerable error; however, experience in this and other studies has revealed the necessity and the utility of these two concepts in the assessment of change.

(*c*) Taking a return to the premedication state after the cessation of the drug as a corroborative evidence that the changes observed during drug periods were related to the drug intake.

Results

We shall discuss separately changes observed in clinical interviews and in serial psychological testings.

I. Clinical Results

The changes observed through this method will be considered under four headings.

(a) Organization of Mood.—Four categories of mood states were considered: elation, depression, anxiety, and indifference. Table I shows the evolution of mood during different periods of observation. For purposes of simplicity, the intensity of anxiety was qualitatively rated as follows: nil or slight, 0; moderate, 1; marked, 2. It can be seen that nine patients experienced elation during the reserpine period and none during the phenobarbital period. Among the former, four patients developed, in addition to elation, hyperactivity and a relative logorrhea; three patients developed hyperactivity alone, and two patients, logorrhea alone. One patient's state was frankly manic, consisting of marked euphoria, hyperactivity, logorrhea, and an experiential state of acceleration.

Four patients manifested a mixed state of depression-elation. One patient went through two cycles of elation-depression. Two patients' depression carried over into the phenobarbital period, gradually disappearing.

TABLE 1.—*Changes in the Organization of Mood* *

Patient	No Drug	Phenobarbital	Reserpine	No Drug
1	Anxiety 1	Anxiety 1	Anxiety 0 Elation 1	Anxiety 1
2	Indifference 2 Attacks of anxiety 0	Indifference 2	Indifference 0 Anxiety 1 Elation 1	Indifference 1
3	Indifference 2	Indifference 1	Anxiety 2; then elation 1; then depression 1; then mania	Indifference 1
4 †	Indifference 1	Depression 1	Elation 1 (fluctuation)	Indifference 1
5	Indifference 1	Indifference 1	Elation 1; then depression 1	Indifference
6	Indifference 1 Attacks of anxiety 1	Indifference 1	Elation 1	Indifference 1
7	Anxiety 1	Anxiety 1	Anxiety 2 Depression-elation 1; then depression	Anxiety 1
8 †	Indifference 1 Anxiety 1	Depression 1	Depression-elation 1; then depression	Anxiety 1
9	Indifference 2	Anxiety 1 Indifference 1	Indifference 1	Anxiety 1 Indifference 1
10	Anxiety 1	Anxiety 1	Elation 1	Anxiety 1

* 0, slight to nil; 1, moderate; 2, marked.
† In patients 4 and 8 depressive mood was a carry-over from the reserpine period.

An example of the manic-like phenomena was the case of a 42-year-old patient with schizophrenia of 21 years' duration, who had remained mute, immobile, and in a catatonic position for many years. In the second week of reserpine administration he became hyperactive, began to talk with increasing rate, became euphoric, and experienced an inner feeling of acceleration: "I feel happy—my own inside—I got legs on now, I want to go—I have to rush." For the first time he became aggressive. "I like to fight—what I got to get is my right; it was taken away from me . . . . (later) where the hell are my clothes?" After the third week he showed a depressive episode with suicidal ideas ("Somebody is going to kill himself—me"). Then followed a state of frank mania, during which he became markedly euphoric, with some flight of ideas, running around, singing and taking showers, asking for things, and an inner experience of wholeness, which will be discussed later: "Marvelous change . . . before I had nothing to hold me together . . . . I came out fighting . . . . The war will be over pretty soon. You have to be smart . . . . I just walk around, talk and sing, it feels nice . . . . I was sad then (referring to the week before); I am happy now." This was the only patient who showed a frank manic state.

(b) Organization of Ego.—In this connection, attempts were made to evaluate two aspects of the ego system, i.e., the synthetic and the defensive functions.

1. The synthetic, or integrating, function of the ego was evaluated through the considerations of total reality responsivity. This was reached by taking into account four sectors of the patient's phenomenal field: organization of thought (shift from the incomprehensible and paralogical to the comprehensible and logical mode of ideation); appropriateness of responses and behavior; self-appraisal; orientation to future. Considered along these lines, all patients appeared strengthened in their synthetic function during reserpine period; nine of them returned to their pretreatment level after discontinuation of reserpine, indicating the possibility that the amelioration was not due to transference phenomena.

2. The defensive functions of the ego were assessed through two mechanisms of defense, which were taken to be more or less specific for the schizophrenic ego's

manner of organizing and handling anxiety, i.e., withdrawal and splitting.*

In two instances, in addition to withdrawal, hypochondriacal symptoms seemed to be a major mode of defense, and in one instance marked passive-submissive attitude was the mode of defense. It should be noted that the assessment of changes in these defenses was obviously relative and was based upon the subjective appraisal of the observer, who made an evaluation of a "more or less" kind. The shift in the content of a free-associations sample in different periods of observation was one of the main sources of inference.

The data revealed that in all instances the defense of withdrawal and splitting was mostly affected. In nine of these the premedication level of functioning was resumed after the cessation of medication. In five patients the defense of denial could be inferred to have appeared during the reserpine period. In the two patients expressing hypochondriacal preoccupation, this symptom disappeared during the reserpine period, indicating a relative shift from internal object to external object cathexis.

Examples of alteration of synthetic and defensive functions were seen in two patients who had been markedly withdrawn, partially mute and split (in both meanings of the word mentioned previously), for many years. In the second week of reserpine therapy, they began to speak, showed increasing concern about the reasons for being in the hospital, and one of them actually asked to go home. Both felt certain elation, and to their relatives they appeared markedly improved. One patient, who had shown for years a bizarre behavior of hitting himself, stopped this self-destructive act and became relatively aggressive in the ward; the other patient's thought content indicated emergence of aggressive preoccupations. One of these patients had shown no particular change during the phenobarbital period, which preceded the reserpine period, and the other patient's status returned to his pretreatment level at the end of the phenobarbital period, which followed the reserpine period.

(c) Organization of Drives.—The status of drives was assessed through the evaluation of motor activity, or what was called the energy output; overt expression of anger or love, and the content of the patient's reported thought, fantasies, dreams, delusions, or hallucinations. In all patients during the reserpine period there appeared an emergence of aggressive drives. These occurred in the form of increase in energy output in seven patients; this was associated with overt expression of aggression in five of these patients and with covert expression of aggression in four others, as inferred from the patients' thought content.

(d) Organization of Object Relations. In this connection, two noticeable changes seemed to occur.

1. A change from a relatively maximum preoccupation with inner world and internal objects and a relatively minimum preoccupation with outer world to a maximum preoccupation with external objects, and a minimum emphasis on internal objects. In two patients with hypochondriacal complaints this symptom disappeared, as was mentioned before. Patients were no longer preoccupied with their inner organs and objects; they withdrew their interests from these and shifted them to external objects.

2. A change in the perception and experiencing of objects from bits to whole. The objects and the self appeared more compact; body boundary feelings became more concrete and solid. In other words, a shift seemed to occur from an existence of disruption to that of solidity and compactness. In two patients this shift was particularly evident and was verbally expressed.

* By "splitting," we have in mind particularly that aspect of its definition which implies (*a*) a dissociation of internal reality in such a way that only a very restricted and limited mode of contact with reality is preserved; i.e., parts of the psyche and external world appear split off, or (*b*) a dissociation of internal reality in many sectors, the parts manifesting themselves in an experiential state of being split, being in bits and pieces.

An example of the experiential state of becoming whole was mentioned before ("before I had nothing to hold me together"). Another patient, during the first and second periods of observation (no-drug and phenobarbital periods), felt quite "empty . . . inside me" and "dry"—to him dryness was a sickness. Also, he felt in a perpetual state of being overwhelmed by the external objects. "You are invading me. . . I am not invading you." At the end of the first week of reserpine a reversal in the direction of aggressive impulses seemed to occur: "I feel quite calm . . . the word I want to use is volcano. . . . I want to burst. . . . I put myself together; I feel better." He felt "smaller" and closer in himself: "I feel cheerful . . . sort of more intact . . . building sort of walls in my body . . . a stronger state . . . sort of white, build-up feeling." When asked about the effect of pills, he said: "I was angry when I was getting pills; in other words, the anger brought up the disease and the pills connected it," i.e., connected his body together.

II. Psychological Test Results

The difficulty that is presented on the assessment of a projective technique, such as the Rorschach, is that the evaluation is a global one, in which each variable is linked to the other. Separation of the individual determinants by statistical analysis often fails to identify the proportion of change that has been made by an over-all evaluation of a longitudinal change. Another important factor to consider in the retest results of chronic patients is that even the most minimal and subtlest shifts are more meaningful than equal shifts in a neurotic group.

In the global evaluation the reserpine period was identified as the period of most change for eight patients. These change differences were statistically significant ($P=0.01$) for the reserpine, as compared with the no-drug period, but not for the phenobarbital period. Of the two patients who were not correctly placed in the reserpine group, one showed equal and one more change in the phenobarbital period. In both these cases the reserpine administration had been made prior to the phenobarbital period in the experimental design. From this finding, as well from the analysis of clinical and test records, the impression was gained that reserpine had a carry-over effect, which had probably narrowed the differences between the two drugs.

In the item evaluation, statistical analysis of individual Rorschach indices was carried out. Comparison of the Rorschach indices from the no-drug period to the phenobarbital and reserpine periods revealed three statistically significant factors for the reserpine period and three important trends, which are summarized in Table 2. The significant findings are as follows: 1. The number of responses produced for each total Rorschach administration. An increase in productivity and higher intellectual functioning is interpreted from this finding. 2. The sum color, that is, the total use of

TABLE 2.—*Rorschach Changes from Pretest to Periods of No Drug, Phenobarbital, and Reserpine*

Rorschach Variable	Mean No-Drug	Mean Phenobarbital	*t*-Test *	*p* †	Mean Reserpine	*t**	*p* †
No. of responses	8.7	11.5	1.82	0.10	11.8	2.44	0.05 ‡
Sum color	1.0	2.5	1.88	0.10	3.10	2.72	0.05 ‡
Whole area, %	40.6	46.3	1.26	0.30	59.60	3.54	0.01 ‡
RT/Color	13.9	10.3	1.13	0.30	7.30	2.01	0.10
D%	23.2	30.6	0.711	0.50	34.1	1.25	0.30
Human %	9.1	10.5	0.129	0.90	12.2	0.769	0.5

* The *t*'s have been computed by the formula for correlated data.
† *P* is based on comparisons of the differences with no-drug periods.
‡ Levels of significance for 9 *d.f.*

color determinants, pointing to a greater degree of responsivity, a lifting of depressive elements, and an emergence of excitation. 3. An increased use of whole areas on the Rorschach test, suggesting an increased ability to organize perceptions. It is submitted that these three significant changes were not due to chance, for the reason that (*a*) they form a unitary picture with each other and with the trends in other determinants, and (*b*) they parallel the changes in Figure Drawings and in the clinical picture. Among the trends † which did not reach statistical significance were the reaction time to colored cards, the increased use of large details, and the increased use of human concepts. In each of these categories, 7 out of the 10 patients showed shifts (but not significant for the Signs nonparametric test). These trends substantiate faster emotional responsivity, an increased ability to use the larger areas, and an increased awareness of external objects.

When the test results were compared for the phenobarbital and the reserpine periods, none of the differences reached statistical significance. It is felt that carry-over of reserpine effects to the phenobarbital period in half of the sample is related to the canceling out of statistical differences.

Content changes showed a shift for the reserpine group in 8 out of the 10 patients, a shift which is significant at the 5% level for a χ^2 of one tail. The six shifts at the phenobarbital period did not reach significance. Such changes included an increase in the quality of the responses, more variety in the types of content seen, better elaboration and delineation, and less use of confabulation and contamination. For example, one patient in the phenobarbital period saw "two animals sitting up" on Card 2, and in the reserpine period these objects became "two puppies playing and kissing." This is a good example to illustrate that, although the determinant FM animal movement did not shift, the quality of the determinant and the content did show shifts that enter into an over-all analysis of change.

Two separate judges did an over-all blind analysis of Figure Drawings and found the most change at the reserpine period in 8 out of the 10 patients. The indices that showed the most shifts were those of excitement and disinhibition.

General Comment

In summary, the analysis of data indicated that the following changes seemed to occur during reserpine administration:

1. Alteration of mood in the form of an elation-depression swing, with elation predominating. In one patient there was a frank manic state.

2. Appearance of aggressive impulses, overt or covert.

3. Alteration of both synthetic and defensive function of the ego. There appeared a break in the defenses of withdrawal and splitting and movements toward external objects. Concomitant with this there was a change in object relations in the form of a shift toward an experiential state of wholeness.

Psychological test data (Rorschach and Figure Drawings) partly confirmed the clinical impression.

From the theoretical points of view there are three main problems: Did these changes occur? If they did, what do they mean psychoanalytically? How are they related to pharmacotherapy?

1. *Validity of Observations.*—The two observers in this experiment had had considerable previous experience with reserpine, and it is probable that they had guessed the nature of the drug. Even though no somatic inquiries were made and the hypnotic effects of phenobarbital were similar to those of reserpine, it is still possible that the true nature of the drug was preconsciously determined and the observations subsequently distorted. Another possible complicating unconscious motive for

† These are considered "trends" because of their continuity with each other and with the three significant determinants.

distortion was the repetitious character of the experiment. In two previous studies certain rather "neat" theoretical formulations in regard to the mode of action of reserpine had been made. The present experiment was undertaken to check these. An underlying unconscious wish to reach the same conclusion is not hard to infer. Observers wished to find certain facts, and they found them. The suspicion is justified that the facts were unconsciously selected or distorted in order to fulfill the wish.

The above considerations are applicable to all psychopharmacological studies, double blind or not, and they are particularly applicable to the intangible field of psychodynamic studies. They involve the problem of countertransference in all psychophysiological studies. Only the repetition of this experiment by others following the same technique can clarify the validity of the inferences.

2. *Interpretation of Observations.*—If the data are taken as more or less valid, they indicate that concomitant with drug administration there seemed to occur a partial abandonment of schizophrenic defenses, a change in mood states toward elation-depression, and in some cases an experiential state of wholeness. Phenomenologically and dynamically, we take these to indicate a partial shift from a schizophrenic organization to a manic-depressive-like organization. This by no means indicates that the schizophrenic structure is permanently altered, but shows only a temporary movement of progression. This contention is in harmony with the genetic principle of psychoanalysis, and particularly it is in correspondence with Melanie Klein's concepts of development from paranoid position to depressive position as the forerunner of similar states in adulthood. According to Melanie Klein's view, paranoid position develops in the earliest stage of the development of the child, and it is a deeper state of regression than manic-depressive position, which develops in a later stage of development. When under the sway of pharmacotherapy a shift from regression to progression occurs, schizophrenic organization in this process shifts partially toward a more organized psychic state, which is that of a manic-depressive state.

3. *Psychopharmacological Considerations.* The problem now is to relate the shifts in psychic organization noted above to the effect of reserpine. From the point of view of theory, as we have stated on another occasion, it is suitable to attribute the changes not to such psychological construct as ego but to the id and the energetics of the mind, i.e., the concept of cathexis. This concept, which is closely connected with the notion of drives, is nearer the ideas of organicity, because there is a general agreement that drives have an organic source. An organic substance may be said to alter primarily the economic state of the psyche rather than its structural state. The alteration of the structure occurs subsequently because of a change in cathecting energies. It is consistent to infer that the drug causes a change in the organic sources of drives, resulting in an economic change and a shift in investment (cathexis) of psychic agencies. If this shift is concerned with superego elements (internal objects system of control), then there would result a partial decathexis of this agency, a decrease in anxiety and the appearance of a manic state, which occurred primarily in the present cases. The emergence of aggressive drives may give an additional support to the above contentions; i.e., reserpine facilitates the release or accentuates the intensity of aggressive impulses, which break through the schizophrenic defenses, and results in destructive rejection of the superego, which has already been weakened by the partial decathexis, and the appearance of a manic state. This formulation is consistent with certain psychoanalytic concepts about the genesis of mania. The depressive state occurs when the above mechanism fails and the progression shift reverses itself. That may be the reason that depressive states

did not occur first in our patients and that they were always subsequent to the elation state.

Summary

The purpose of the present study was to check the validity of the hypothesis formulated in previous investigations concerning the effect of reserpine on the psychodynamic structure of schizophrenic states. This hypothesis stated that under reserpine administration a partial shift from schizophrenic organization to manic-depressive-like organization seemed to occur in certain cases. This shift could be conceptualized in psychoanalytic terms as due to a change in cathexis, particularly related to aggressive impulses in connection with internal objects (superego elements).

Ten chronic schizophrenic patients were divided into two equal groups and placed on the following regimen: four weeks of no medication, four weeks of reserpine or phenobarbital, four weeks with these drugs reversed, and four weeks of no medication, with a week between each change. A double-blind technique was used. Psychodynamic studies were performed through twice-weekly interviews with two different psychiatrists, and through independent psychological tests (Rorschach and Figure Drawings), consisting of a pretest and three retests. The aim was not therapeutic but observation of change.

Analysis of clinical and psychological test data tended to confirm in their essentials the previous hypotheses. The changes observed consisted of a partial abandonment of schizophrenic defenses of withdrawal and splitting, a change in mood state toward elation-depression states, and a shift from experiential state of being in bits to wholeness. These changes were seen as indicative, in Kleinian terminology, of a shift from paranoid to manic-depressive-like positions.

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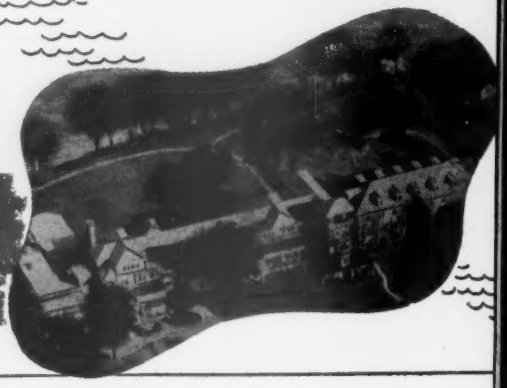

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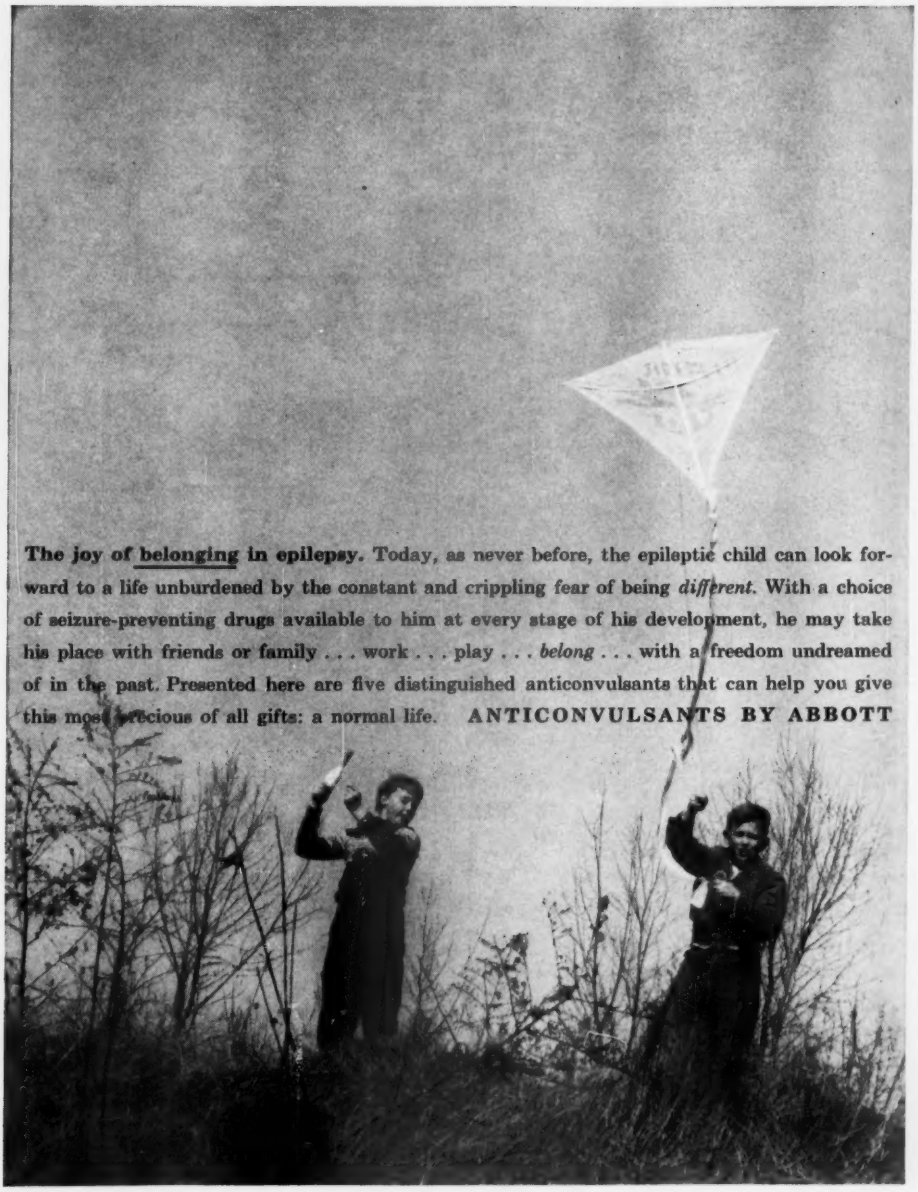

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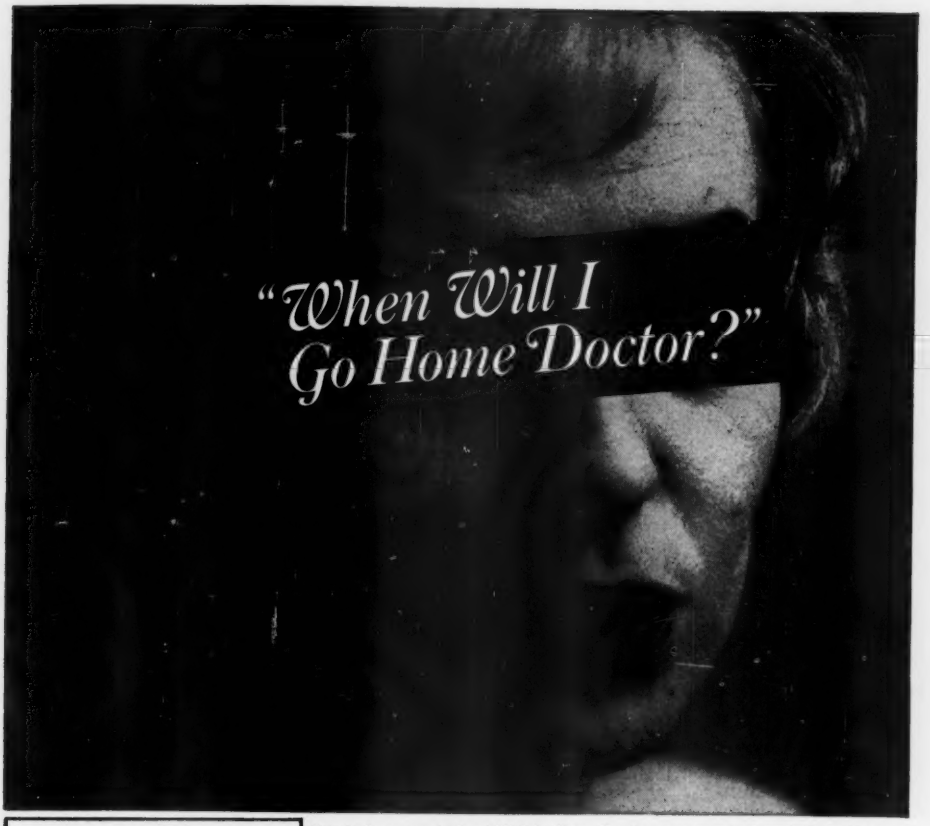

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1. Goldman, D.: Am. J. M. Sc. 235:67 (Jan.) 1958. 2. Morehouse, W. G. and Freed, J. E.: Monographs on Therapy 3:32 (May) 1958. 3. Leger, Y.: Union Med. Canada 87:831 (July) 1958. 4. Bruckman, N. S.; Saunders, J. C., and Kline, N. S.: Monographs on Therapy 3:24 (May) 1958.

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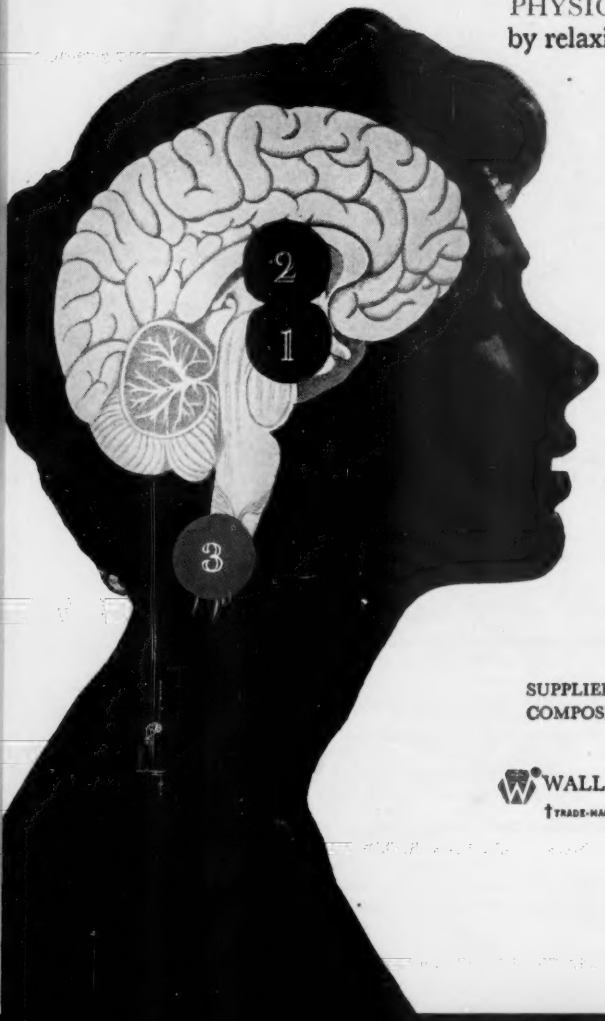

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2
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3
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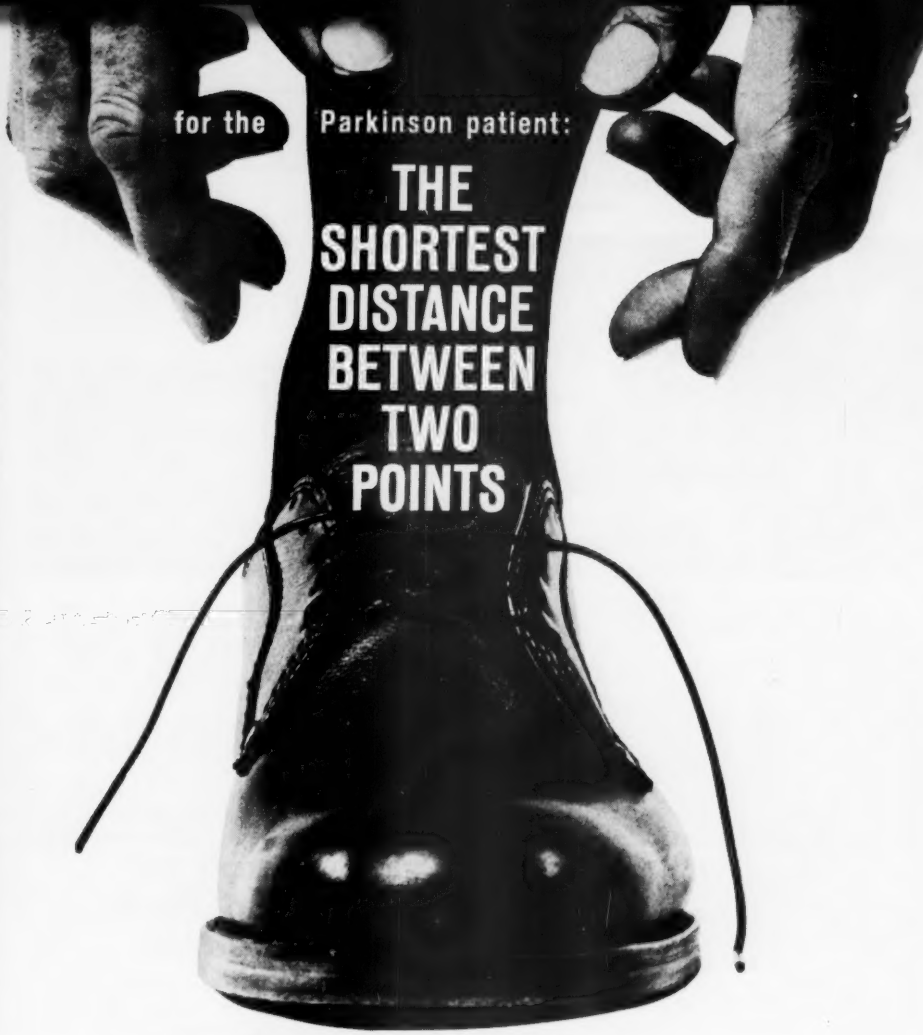

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1. Doshay, L. J.: M. Clin. North America 40:1401 (Sept.) 1956.
2. Doshay, L. J.: Current M. Dig. 22:11:49 (Nov.) 1955.
3. De Jong, R. N.: J. Michigan M. Soc. 57:722 (May) 1958.

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FOUNDED IN 1904

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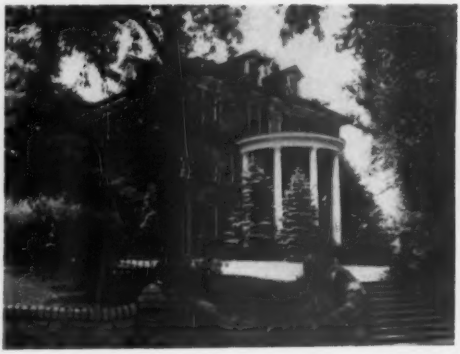

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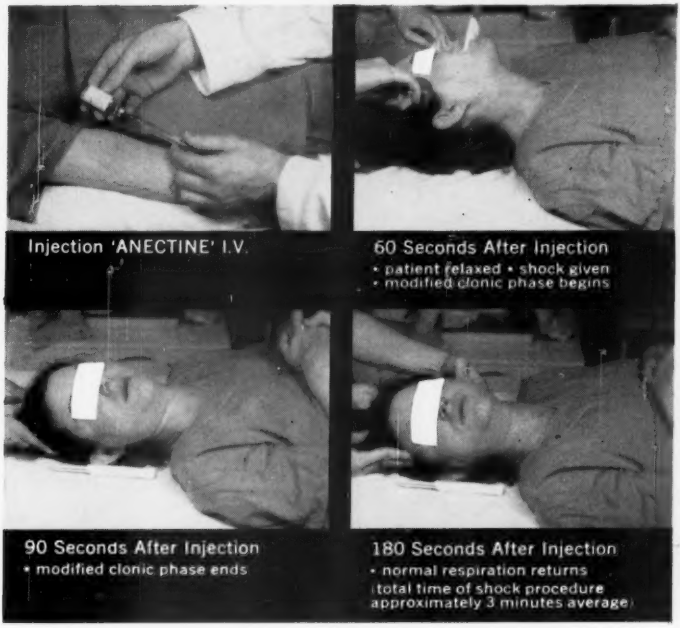
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"... method of choice."

Havens, L. L.: Dis. Nerv. System *19*:1 (Jan.) 1958.

"... recommend its use."

Impastato, D. J., and Gabriel, A. R.: Am. J. Psychiat *114*:698 (Feb.) 1958.

"... treatment of choice."

Michael, K. D., and Wunderman, D. C.: J. Nerv. & Ment Dis. *126*:535 (June) 1958.

"... irrespective of age."

Robie, T. R.: J. M. Soc. New Jersey *52*:82 (Feb.) 1955.

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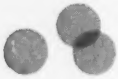

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